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SHOULD MANURE BE APPLIED IN THE SPRING OR FALL?

Mr. N. S. Brian, of Lawrence Co., Pa., favors us with some remarks on this subject. Speaking of a class of farmers who are at no pains to preserve their manures, he remarks:

"They leave the manure heap to spread over as much surface as the cattle range. There it lies through all the soaking rains of April, May, June, July and sometimes August. The valuable portions of the manure leach out like ashes in a hopper. Then about September, the remainder of the heap, which bears about the same proportion to good manure as pomice does to apples, is drawn out and scattered in thin, small heaps. The sun dries it; the wind dries it; the heat evaporates it, and the rain washes it away, and by the time it is plowed under it is worth just nothing.

"Our object should be, first, to keep the manure in a heap within as small bounds as possible, and not let it go through the leaching process. Second, let us apply all manure that is on hand to the spring crops. By this means we gain much: we have more time to draw it out, the weather is cool and the manure not subject to evaporate; and third, we have it in use four or five months in advance of the old fogy system. Then, if we wish, these spring crops can be followed by wheat in the fall. By that time the manure will have become thoroughly mixed and amalgamated with the soil, and we may look for a good result. I have strongly advocated the application of coarse manure to corn, as the roots are of a more searching nature than those of the smaller grains."

There can be little doubt that manure exposed in the manner described by our correspondent is greatly damaged. Still, however, manure *can* be kept till the fall without much loss. There is no necessity for letting it lie exposed, over so much surface, to the bleaching and leaching effects of the sun and rain. We know good farmers who let their manure lie in the yards all summer, and draw it out in the autumn and spread it on the clover fields intended to be sown to wheat the next fall. If the manure in the yards is kept in a compact body, and the buildings are spouted, and the heap is kept well covered with litter, it will absorb nearly or quite all the water that falls upon the surface, and there will be little loss either from drainage or evaporation. A still greater improvement, however, is to have a tank into which the drainings can run during the wet season, and from which they can be pumped back when the manure heap is dry. If the liquid in the tank is kept saturated with plaster (sulphate of lime), all the ammonia will be retained, and when the liquid is pumped on the manure it will also "fix" the ammonia that exists in the heap. In this way, we are confident that manure may be kept in the yard all summer without loss. The advantages of this system are that the manure is greatly reduced in bulk and weight, and less labor is needed to draw it out and spread it. It is also thoroughtly fermented and acts immediately on any crop to which it is applied. Such manure spread on young clover early in the fall would give it an early start in the spring, and those who have never tried it will be astonished at the increased growth of the clover.

The English farmers, as a general rule, apply the bulk of their manure to the turnip crop. The turnip does not occupy that place in our rotation that it does in England, and, we believe, never will. Our cold winters and hot summers are against its extensive cultivation as a renovating crop. At present we have no crop that is to us what the turnip is to the English farmer—no crop that can truly be termed a "fallow crop"—no crop that at once serves to clean and enrich the soil. Our great American cereal, Indian corn, allows the free use of the horsehoe, but its growth does not enrich the soil. Beans come nearer to what we want. They impoverish the soil but little, and, being planted in rows or hills, allow us to clean the land. Our principal renovating plant is *red clover*. Till we discover something better, we must depend principally on clover to enrich our land. "Manure your green crops," is the English rule. "Insure me a crop of turnips," says the British farmer, "and I will insure you every other crop in the rotation." Acting on this principle, it follows, from the preceding considerations, *that we should apply our manure to clover*. This is contrary to the generally received

opinion, and we state it hesitatingly. Such a method of manuring may not produce the most *immediate* benefit, but where farmers keep plenty of stock, where clover hay for winter feeding is properly appreciated, and where one of the chief objects is to make manure and keep up the fertility of the farm, we think it will be found in the end better than to apply the manure directly to grain crops.

But will not manure spread out on the fields lose its strength? There may be a little loss, but we think not enough to form any serious objection to this plan.

MORE GOOD ROOT CROPS IN CANADA.

We are indebted to Mr. W. A. Cooley, Secretary of the Wentworth (C. W.) Agricultural Society, for the report of the judges appointed to award the prizes offered for the best two acres of Swedish turnips (ruta bagas), and for the best quarter acre of carrots. We must be permitted again to express our gratification at the evidences we are constantly receiving of the increased attention paid to the culture of root crops, especially in Canada.

There were fourteen entries for the prizes offered for the best two acres of turnips. The first prize was awarded to Mr. John Weir, of West Flamboro. The yield was at the rate of 1,806 bushels, or 39 tons, per acre. The soil was a sandy loam; a wheat stubble. In October, eleven loads of barn-yard manure per acre were plowed in with a jointer plow ten inches deep. The land was cross-plowed about the end of April, and harrowed on the 1st of May, and plowed again May 20th; afterward harrowed and rolled. In addition to the manure put on in the fall, ten bushels of bone-dust per acre was drilled in with the seed. Sown 1st of June, in drills 28 inches apart, and plants thinned from 8 to 10 inches in the drills.

The second prize crop was 1,244 bushels, or 37¼ tons, per acre. Soil, a clay loam; manured with fifteen loads of barn-yard manure per acre, and plowed in the fall; plowed and cultivated twice in the spring; rolled once, just before ridging up for sowing; seed (Laing's Improved) sown 14th of June, 3 lbs. per acre, in drills 23 inches apart. As soon as the plants were up, the horse-hoe was passed between the rows, and a week later the plants were thinned from 9 to 10 inches apart. They were hand-hoed again when the plants had acquired a strong growth, and they were horse-hoed three times.

The third prize crop was 1,225 bushels per acre. Land plowed in the fall and again in the spring, and well harrowed. Drills were then opened, and stable manure put in the drills and immediately covered. Seed (Skirving's Purple-top) sown June 1st, in drills 24 inches apart, and the plants thinned from 9 to 10 inches.

The fourth prize crop was 1,113 bushels per acre.

The first prize crop of carrots was on light sandy soil, manured with thirty loads of manure to the acre; plowed in the fall and again in the spring and ridged up. Seed sown May 10th, in drills 22 inches apart. The carrots were *not thinned*, a practice which the Committee "can not recommend, although it has some advocates in that section." The yield was 1,237 bushels per acre.

In making their report, the judges remark:

"We were much gratified to find so marked an increase in the cultivation of the different root crops (more especially that of Swedish turnips) in this county. It is not many years since a field of turnips was a rarity, but now almost every farmer has from half an acre upward. Carrots also seem to be gaining favor, for in our route we saw numbers of small pieces, say from one-quarter to one-half of an acre, which is a convincing proof that the farmers of this country are beginning to see the good effects of root culture. It is a generally acknowledged principle among good farmers, that with a sufficient quantity of roots they can keep more stock during the winter, and also leave them out in the spring in much better condition. A still greater benefit is, the amount of good manure made from cattle fed on roots, over the merely rotted straw that is too often put on the land under that name.

"We are unanimous in our opinion that every farmer ought to grow at least from four to five acres of turnips every year, thereby improving his stock and land at the same time. The different crops we were called upon to examine did the parties great credit for their general appearance, being (with one or two exceptions) very clean, and bore evidence of good culture."

GERMINATION—SOAKING SEEDS, &c.

Germination is the first act of vitality in plants; it is the first great change which converts the dormant embryo of the seed into an active, growing body. Three things are necessary for this change: the presence of moisture, atmospheric air, and a certain elevation of temperature. The absorption of moisture softens the integument of the seed; warmth quickens the embryo into vitality, and the air supplies the oxygen whereby the starch, sugar, etc., of the seed are converted into carbonic acid for the use of the young plant. In this case, as in all others, the conversion of the carbon of the seed into carbonic acid eliminates heat—and *force?*

To most land plants, water in a fluid state is injurious, if not fatal. Seeds of our common plants germinated under water almost invariably die and rot. We want a moist, but not a wet soil.

Exposure to light is generally regarded as injurious to germinating seeds; and it is a common opinion that they are covered as much with a view to keeping them in darkness, as for any other reason. "But, experiments," says Dr. LINDLEY, "by no means confirm these statements; on the contrary, if seeds are deposited upon damp soil, and then covered with a plate of glass, closely pressed down upon them, they germinate as well as if in darkness, though, perhaps, not so quickly." The covering of seeds with earth is, therefore, to be regarded rather as a method of preserving around them the necessary moisture, than as a means of guarding them against light. In early spring, when the ground is moist, a very slight covering is sufficient for this purpose, and in the case of sowing grass and clover seeds on winter wheat in the spring, the leaves of the wheat plant afford, probably, sufficient covering. While, therefore, we think wheat may be sometimes harrowed in the spring with advantage,—breaking the crust of the soil, killing weeds, etc.—yet so far as covering the seeds is concerned it is seldom necessary. One thing is certain, there is more of such seed lost from covering too deeply than from not covering at all.

The temperature at which air and moisture act on the vitality of the germ in seed varies extremely. The only fixed rule is, that it must be somewhere between 32° and 100°. Below 32° (the freezing point), none will germinate; above 100°, if that temperature is prolonged, all perish. It is true that seeds with very hard coats have been plunged for a short time into boiling water, without injury; but in this case, they were not allowed to remain a sufficient length of time for the heat to reach the germ, otherwise it would have perished. With the exception of Indian corn and tobacco, which require higher temperature, our ordinary agricultural crops germinate freely at 40° to 50°. As a general rule, it may be said that all seeds will germinate more readily in a temperature above what they are accustomed to than below it.

Connected with the act of germination is the practice of seed-steeping, with a view to future influence upon a crop. On this subject we remarked in the *Genesee Farmer* for May, 1860: "Soaking old, dry seeds in a solution of chloride of lime is said to facilitate the softening of the husk, and thus render germination easier. This is probably true; but that the small quantity of *any* ingredient that seed can absorb can materially help its after growth, is inconsistent with all our ideas of the nourishment and growth of plants. In the majority of experiments that have been made on this subject, it is quite probable that the result would have been just as good if the seed had been simply soaked in water alone for twenty-four or forty-eight hours." We find that this opinion is confirmed by Dr. LINDLEY, who remarks as follows:

It is alleged that, by the use of certain solutions, in which seeds are to be steeped before being sown, the same effect is producible on a crop as by employing heavy dressings of manure. But there does not appear to be the smallest ground for these assertions; *steeps all fail in the presence of careful experiment*, and it is certain that, when they seem to have been attended with advantage, the result has been owing, not to the steeps, but to some unexplained peculiarity in the soil. The only exception to this is in the cases where bony or very hard seeds, like beet, are soaked in warm water before being sown. In such instances, steeping is useful, because the swelling of the seed is promoted enough to secure the bursting of the tough integuments that enclose the embryo; but beyond this point, steeping should never be carried; and when even this is practiced, it is indispensable that the seed should be immediately committed to the ground while wet. Otherwise, the act of germination will be arrested by dryness; and once arrested, it can never be restored.

QUANTITY OF SEED ON RICH AND POOR LAND.

Where should we sow the most seed per acre—on a rich or on a poor field of land? Some say one way and some the other. Now we would be glad to hear the opinion and reasons of any thorough practicing agriculturist. O. H. J. *Palermo, Oswego Co., N. Y.* [Generally, but not always, sow the most seed on rich land. It will sustain and ripen more stalks. Oats, for example, to be of equal size in growth, must be sown much the thickest on fertile soil—where a thin seeding would give a few very large and coarse stalks, which will be in greater danger of lodging. Every farmer is aware that a rich soil will ripen the corn on a greater number of stalks than a poor soil. To prevent hay from being coarse and harsh, grass seed must be sown thickly where the land is rich. But there is another reason also, why grass should be sown thickly on poor land. The seed will not take so readily, and a heavy seeding is requisite, to provide for failures. On the other hand, all the seed will probably catch on a rich soil. Therefore we would say, sow plenty of grass seed on poor land, and sow plenty on rich land.]—*Country Gentleman.*

THE above question, like many others of great practical importance in agriculture, does not probably admit of a definite answer. As a general rule, we should say rich land requires *less* seed than poor land. But, to arrive at a satisfactory conclusion, we must first determine what is understood by *rich*, and what by *poor*, land.

We were once discussing this subject of thick or thin seeding on rich or poor land, with a farmer in this section, and expressed the opinion that rich land required less seed than poor land, when a gentleman fron Georgia, who was present, said he could not agree with us. He thought that poor land would not *bear* as much seed as rich. A little discussion soon elicited the fact that he thought five bushels of wheat per acre was not a very poor

crop, while ten bushels was a good one. In such a case he was probably correct in thinking that it was best to sow thicker on the rich land than on the poor. If the plants were too thick on such land, they would not find food enough to bring them to maturity. But in another section, where we should not call land rich that produced less than thirty bushels per acre, and where from ten to fifteen bushels would be deemed a poor crop, the question assumes a different aspect. In such case, we have little hesitation in saying that the rich land *needs* less seed than the poor. On the richer land, the plants grow stronger and tiller more, and consequently fewer are needed on the same space. *Loudon's Encyclopedia of* (English) *Agriculture* says: "The quantity of seed necessarily depends on the time of sowing and the state of the land: land sown early requires less than the same land when sown in winter or spring; *and poor land being at all times allowed more seed than rich.*"

It would be easy to quote many other English authorities to the same effect, but the climate of Great Britain is so different from ours that we are not safe in adopting practices based solely on English experience. As a rule, the English farmers sow much thicker than we do; what would be called thin seeding there would be considered thick seeding here. The reason for this difference is probably owing to the fact that we sow wheat in the fall a month earlier than the English—and it is well known that the later wheat is sown the more seed is required. Again, they sow their spring crops at least a month *earlier* than we do, while the ground is cold and sluggish, and for this reason more seed is desirable than with us.

There is one consideration connected with this subject which must not be overlocked. It is of the very greatest importance. *Thin seeding has a tendency to retard the period of ripening.* So that though, as we said before, rich land *needs* less seed than poor land, yet it is safer to sow wheat rather thick on rich land, in order to avoid late ripening and its attendant evils of midge and mildew.

CULTIVATION OF INDIAN CORN.

We have received several interesting articles on this important subject from esteemed correspondents in different parts of the country, and think our readers will be interested in a few extracts.

Gen. Marshall, of Wheeler, Steuben Co., N. Y., informs us that there were some errors in the report of his remarks at the Evening Meetings for Discussion, held during the N. Y. State Fair at Elmira last fall. He plants 3½ feet apart, and not 4 feet, as reported. He prepares his seed corn in this way: Heat some soap in a kettle, and then pour the hot soap on to the corn. It is better to have the corn in a large kettle (not the kettle in which the soap is heated), as it can be stirred better than in a tub. Stir the corn at the same time the soap is poured on till all the kernels are smeared with it. Then add as much plaster as will cause the kernels to separate, and nicely dry the seed. His object is to get as much soap and plaster to adhere to the seed as possible. He does not prepare more seed at a time than can be used in half a day. Keep it standing in the shade. If exposed to the sun it will dry, and cause the soap and plaster to scale off. The soap and plaster draw the moisture, and cause the seed to germinate and come up quickly, and the plants look healthy and vigorous. He has used a mixture of hen manure and *leached* (not unleached) ashes, half and half, a handful in each hill, with good effect. He takes the hen-manure to the barn and thrashes it till fine with flails.

In his section, most of the best corn land is stony, and much damage results from slovenly planting. Careless hands drop the seed all in a heap, and cover with what is most convenient to haul on with the hoe. The seed should be scattered around in the hill, and covered with fine mould, and patted down with the hoe.

E. P. B., of Pharsalia, N. Y., says there are two methods of raising corn in that section. One is to plow up an old meadow or pasture in the fall, harrow twice in the spring and sow to oats or plant with potatoes. After these are off, plow again in the fall, and in the spring draw on manure and plow it under, harrow smooth and plant the corn. As soon as the plants are well up, run the cultivator or plow between the rows, and dress with the hoe; hilling but little if any, but destroy every weed. The more the soil is stirred while the crop is growing the better.

The other plan is to manure and plow up an old sod, as before, either in the fall or the spring. If in the fall, harrow twice in the spring as soon as the ground is in good condition, and plant from the middle of May till the first of June. Some cross-plow in the spring, but unless the sod is well rotted, this is apt to grow a grassy crop and one that is hard to cultivate.

S. B. P., an intelligent and experienced farmer in Michigan, says:

"Plant early, for by this course you not only

have a better chance of escaping early fall frosts, but is is a rule, almost invariable, that the earliest planted of summer crops produce more seed to the amount of stalks and straw than later planted. It is quite a common opinion that corn should not be planted till the soil gets warm, and I know it is said to rot in the ground if the temperature is not above 40°, and that it will not vegetate at lower than 45°; but I think its rotting in the ground depends mainly on other circumstances than temperature, and I have observed that when the temperature is too low for the blade to make its appearance, the roots have often grown two or even four inches, and that in this condition a very few hours of the right temperature brings up the blade. I know that it may be cut down by the late spring frosts, but, if this happens, it will generally come up again. But if it does not, you then have time to replant, and at any rate the disaster is much less than if cut off in the fall before ripe."

A farmer of this county tells how he raised a fair crop of corn last year:

"The plot was an old pasture of some four or five years lying; plowed as deep as one span of horses could work easily (average 7½ inches), and the furrows turned so as to lap a very little on each other. Then with a harrow with long, sharp teeth worked over thoroughly, until all was, as the saying is, as mellow as an ash-heap. Marked both ways, making straight rows (or intending to) 3 feet 3 inches apart. Planted a variety known as the 'small eight-rowed yellow,' intending to have four stalks to the hill.

"As soon as the corn was planted, I mixed unleached wood ashes and plaster, in proportion of three ash to one plaster, putting a good handful on each hill. And here I may state, as soon as the corn came up the effect was very decided in contrast with some hills left without. As soon as the rows could be followed, I commenced using the common cultivator, once in each row, both ways, and repeated every eight or ten days, until the corn was large enough to work with the hoe easily and expeditiously; hoed but once. Before hoeing, the cultivator was used twice in the rows both ways, deep. Finished by using the shovel and flanges of the horse-hoe.

"This method of culture may not be new, but there is an item or two I would call attention to. You need not be afraid of *using the harrow too much*. You must keep the cultivator going—weeds are easiest killed when small. In regard to the use of ashes and plaster, I think I am safe in saying they are worth more than twenty-five cents per bushel for corn. I practice saving seeds from stalks having two ears on each, selecting the top one; also, none but the very choicest, perfect samples, with husks enough to trace them up and store them by themselves. I believe seed can be made prolific, improved and (almost) perfected."

"A Fact Hunter," of Erie Co., N. Y., says:

"A clover or grass ley is the most appropriate land for corn, if the soil is sandy or gravelly so that it may be thoroughly pulverized before planting. At least thirty loads of stable manure should be applied to the acre, except on light sandy soils liable to suffer from drouth. The manure should be well rotted. All coarse straw manures should be turned under and well covered with the furrow slice, but fine manure may be covered sufficiently with the harrow. It is a good practice to harrow in a coat of rotten manure before planting, even where sod and coarse manure have been turned under, as it will be of great benefit to the young plants before the roots get deep enough to take hold of the sod and manure below. The practice of dropping dung in the hill is a slow process, and of little importance after a few weeks, as the roots soon reach beyond its influence; it also precludes the use of the machine in planting, and thereby greatly increases the cost of production.

"I regard the corn-planter as a valuable improvement in the culture of this crop. It greatly economizes expense, increases the production, and deposits the corn with more accuracy than most hired laborers. WAKEFIELD'S planter has an appendage by which plaster and other pulverized substances may be deposited over the seed with a little earth between the seed and the fertilizer. I find but one objection to the corn-planter, which is this: It will not deposit accurately seed which has been soaked and rolled in plaster. Now, as I consider soaking the seed in a solution of saltpetre, to which has been added some tar softened with boiling water, and rolled in plaster, a good preventive from the attacks of birds and vermin, this objection at first seems serious, but may be partially overcome by turning under green sward on which the grass has got a good start, immediately before planting. This will furnish food for the worms, and will generally result in their not disturbing the corn. Good crops may be obtained in this way on land which will not produce corn under any other circumstances.

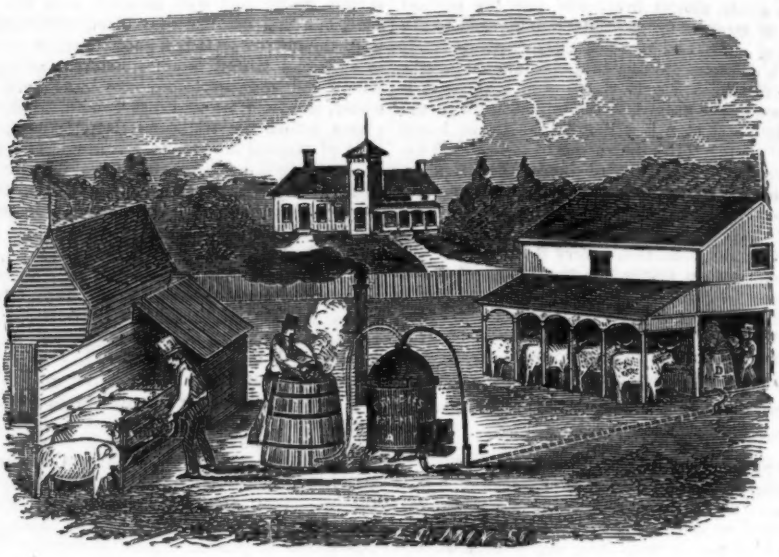
"A sixpence worth of twine to the acre I have always found a perfect protection against crows.

"When corn is planted by hand, the after culture may be much cheapened by planting so that the cultivator may be used both ways. The distance between the rows should be regulated by the variety of corn which is to be planted; and the variety of corn by the climate. Always plant a variety which is so early that it will ripen in the ordinary seasons.

"On portions of the Western prairies, corn may be produced with a very little hoeing, but in most parts of our country it requires considerable attention. The hoe and cultivator should be used often enough to keep the ground loose and free from weeds; but, with the exception of wet soils, I believe there is no benefit derived from hilling.

"Plaster may be beneficially applied on dry land, as a top-dressing.

"Pumpkins may be grown among corn without much retarding its growth, and on sandy soils I think their presence a benefit rather than a detriment to the corn. Their broad leaves derive much nourishment from the atmosphere, and are a protection to the earth from the scorching and drying effects of the sun, which is of great importance in dry seasons, although there is no crop that resists the influence of drouth with so much vigor as corn. Its innumerable small roots penetrate deeply in pursuit of moisture, and its luxuriant foliage attracts the copious dews which always prevail in a season of drouth."



APPARATUS FOR COOKING FOOD FOR STOCK.

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Mr. D. R. Prindle, a farmer of East Bethany, Genesee Co., N. Y., has been experimenting for the last twenty years in regard to cooking food for stock, and is thoroughly satisfied of its great advantage. He has invented a steamer, which, for simplicity and efficacy, is superior to any other that we have seen in this country. Above we give an engraving of the apparatus at work, steaming food for the hogs and for the cattle. We have been somewhat skeptical as to the *economy* of steaming food. Our views on this subject were given at length in the December number of the *Farmer* for last year. Some of the best farmers in the country, however, who have tried it, seem to be satisfied that it is profitable. It is a point which can be determined only by actual trial, and we shall be glad to hear from those who have had experience on the subject. Let us have the *facts*, whether favorable or unfavorable.

We find the following in the last number of the *Boston Cultivator*, a paper which, like ourselves, is by no means disposed to overestimate the advantages of cooking food for stock:

"The *Springfield Republican* states that William Birney has wintered 42 cattle, 3 horses and 4 sheep on the produce of 60 acres of land, which, allowing the whole stock to equal 38 cows, gives about an acre and a half of land for the annual sustenance of each animal. Wheat bran and oil-meal are purchased and used for the stock, which is balanced by the disposal of corn and hay of equal value. The amount of fodder consumed daily by Mr. B.'s stock is stated as follows:

378 lbs. of chaffed corn fodder and straw	$1.89
77 lbs. long hay	70
120 lbs. wheat bran	1.20
10 lbs. oil-meal	17
10 lbs. cob-meal	12
20 bushels roots	2.00
Fuel for steaming the above	40
Total	$6.48

"Which makes a cost of about 17 cents a day for each animal. It is stated that the stock is in fine condition, and that the quantity of milk diminishes when steamed food is withheld. Mr. B. generally cooks 20 bushels of roots per day for his stock, and on feeding, by way of experiment, the same quantity raw for three weeks, there was a diminution equal to a quart of milk a day to each cow."

Improving a Wild Pasture by Sheep.—Mr. Fay, of Lynn, Mass. (good and reliable authority), at the last Agricultural Meeting in Boston, stated that "on a tract which was overrun with woodbox, briars, and other shrubs, he turned 150 sheep. At that time, a cow could not have lived on the whole tract. The sheep were kept there several years, and so killed out the wild growth that the tract now affords good pasture for 15 cows." We suppose the sheep were fed elsewhere, and were occasionally turned on this waste land merely to enrich it by their droppings, and kill out the useless herbage and shrubs.

SPIRIT OF THE AGRICULTURAL PRESS.

Soils becoming Wetter.—The editor of the *Country Gentleman* in some interesting notes on farming in the Susquehanna Valley, remarks that the soils longest cultivated are growing wet. A correspondent of the same journal says that this is true in other places, and adds:

"An experienced farmer, and close observer, residing in one of the richest regions of New York, where the soil was a strong or clayey loam, remarked to me that from the measurements or marks he had made, he had found that in old fields, cleared 40 years before, the soil had settled sometimes at least three inches. There is no doubt that this is at least partly to be ascribed to the gradual working out by cultivation, of the vegetable fibre that always abounds in new land, or that which has been reclaimed from the forest. The remedy must be underdraining, subsoiling, manuring with coarse manure or that which contains much straw, and turning in clover or other green crops left to ripen rather more than usual. For the land spoken of in the Susquehanna region, and others of a similar character which may not be easily drained, topdressing the grass fields in autumn with manure or compost, by promoting a strong growth of grass roots, would undoubtedly have an improving tendency; and where practicable, Maj. Dickinson's mode of flooding soil on grass would probably be highly beneficial."

Underdraining.—A Nova Scotia correspondent of the same excellent paper, gives the result of an experiment in underdraining on a field near his house, which had been always too wet to grow anything thrivingly. On this piece he put a number of French drains, filling them up within 18 or 20 inches of the surface with stones. Many of his neighbors laughed at him for what they thought would be a waste of time, labor and money, but he accomplished his object, and next year seeded his drained land with wheat. As the grain grew it was the admiration of every one, and when the time of harvesting came, he had the satisfaction and pleasure of taking something over forty bushels of good grain, plump and full weight, to the acre; the field contained about two acres. Every year since, the same land has yielded heavy crops of hay, and the grass grows directly over the drains much higher and better than on other portions of the field.

Churning the Whole Milk.—The editor of the *Country Gentleman* has visited the dairy farm of Philo Kirby, of Otsego county, N. Y., and says: "His average of butter is from 150 to 180 lbs. a year, *on grass*—having reached one season 185 lbs. [This average, it should be added, is the amount sold for each cow, *exclusive* of what was consumed in the families of Mr. K. and his son.] He churns by horse-power—employing four barrel churns at once, which will turn out about 40 lbs, apiece at a churning. The temperature he prefers, and which he is particular to secure, is 65°; he churns milk and cream together, which is *not* usual in the dairies here—and thinks this is the way to *get all the butter out*. His butter commands uniformly as much as anybody else's, and a little more than some, and the tubs we saw just on their way to market were nice enough in appearance to justify this statement."

Sawdust.—A correspondent of the *American Farmer* recommends sawdust for bedding horses in winter, but thinks it is too heating in summer. He thinks it is very injurious to use sawdust mixed with manure, around fruit trees, as it will infest and ruin the trees by supplying them with the wood-worm, so very abundant in the sawdust.

Linseed Meal for Calves.—The *Irish Farmer's Gazette* gives the following directions for feeding oil cake to calves:

"Linseed meal is highly nutritious, and a useful auxiliary in feeding calves; each calf may get from one-half to one pound per day, according to size and age. The best way to prepare it is—steep a quarter of a pound for each feed in cold water, for twelve hours, then either dilute it with warm water, till of the temperature of new milk, making a gruel equal in bulk to the quantity of milk usually given, or boil it for twenty minutes, and let it stand till lukewarm; in the beginning but a small quantity should be given, mixed with the milk, and by degrees increase it and decrease the milk, till at the end of a month or six weeks, the calf may be fed alone on the linseed, and may be allowed some grass, hay, and finely cut roots."

Keep House-Plants Clean.—A writer in the London *Cottage Gardener* relates an experiment showing the advantage of keeping the leaves of plants free from dust. Two orange trees, weighing respectively eighteen ounces and twenty ounces, were allowed to vegetate without their leaves being cleaned for a year; and two others, weighing nineteen ounces and twenty and a half ounces, had their leaves sponged with tepid water once a week; the first two increased in weight less than half an ounce each, while of the two latter, one had increased two and the other nearly three ounces. Except the cleansing, the plants were similarly treated.

To Make Cows Calve in the Day Time.—It is said that cows may be made to calve in the day time, rather than during the night, by the following simple plan:—"When the cow is in calf and the milk beginning to fail, till she is about 'yelled,' let no milk be taken from her during the day, or at night, but milk her any time in the morning, and let none be taken *but in the morning;* and, when her time to calve has come, she will drop her young in the day time." Is there any truth in it?

To Destroy Insects on Fruit Trees.—A writer in the *New England Farmer* says:—For a common-sized plum tree, fill six or eight vials about two-thirds full of water, well sweetened with loaf sugar, and hang them on different parts of the tree, about the time it is blossoming, and the insects will take that before the fruit. He had filled vials twice in one season, and found among them hundreds of insects such as he never saw or heard of before.

Cows Leaking their Milk.—The *Prairie Farmer* says purchase of the druggist a small quantity of Collodion, or "liquid cuticle." Apply it to the end of the teats after milking the cow. It at once forms a thin, tough skin, and closes the orifice. At the next milking this orifice can be broken through, the cow milked, and another application made. After a few days the defect will be cured, and no further application will be needed.

Cost of Raising Turnips.—A correspondent of the *Country Gentleman* says:—"I have just been footing up the cost of my turnip crop. Reckoning all expense of cultivating and putting in cellar, and interest on land at $7 per acre—they cost three cents per bushel."

Working Butter.—A correspondent of the *Homestead* says a thorough working of butter is better done by taking the butter in the hand in lumps of three or four pounds each, and slapping it against a hard surface, than by using a ladle.

"THE PAST, PRESENT AND FUTURE OF BRITISH AGRICULTURE."

Such was the subject of a paper recently read before the London, or Cent[ral] Farmers' Club by Alderman Mechi. A few extracts will be read with interest:

B. C. to A. D. 450.—If this country were without towns, cities, or roads, trade, commerce, or manufactures, and if the population were, consequently, solely agricultural, it would evidently be unnecessary to produce more grain and meat than would supply their own families, their lords, warriors, governors, clergy and dependants. Pasture, wood and waste would abound; and, as there would be no use for money, the proprietors of the land would receive for their almost worthless acres, personal service or a portion of the produce. Such was, in fact, the condition of Britain when, 55 years B. C., the Romans under Julius Cæsar landed in Kent, and ultimately conquered nearly the whole of South and Mid Britain, which they colonized and partially civilized, giving to the natives municipal institutions—a pretty good proof that in South and Mid Britain we were not so savage and barbarous a race as has been by some represented. It is true that the North Britons were more fierce, barbarous and warlike than those of the South; and that our cannie friends over the border were then, as now, determined to come South in search of the "loaves and fishes;" for, in spite of high walls and fortresses, the Romans could only partially check the inroads of the Picts and Scots. The Britons of that remote period were evidently agriculturists, having herds and flocks; and also, in the Southern districts, growing corn [wheat], the roofs of their wooden houses being thatched with straw. They also made hay, for the wheels of their war-chariots had scythe-blades attached to them; and having chariots, they must have understood making wheels. Although we have no authentic records before the time of the Romans, there is sufficient evidence to show that Britain had for many centuries carried on a trade with the Phœnicians, who coveted the produce of her mines; and, in fact, the Belgians had partially colonized the South-eastern coast. No doubt the agriculturists of that day had their Webbs, Bakewells and Collings; but they had no oil-cake, turnips or clover to carry them through the winter. Having no Manchester manufacturers as their customers or supplyers, the Ancient Britons depended principally upon nature for their clothing, in the shape of furs and skins obtained by their skill as hunters in the extensive forests and coppices, or from the skins of their sheep and goats. * * * One thousand five hundred years ago, Britain had possessed for more than three centuries nearly the whole of the Roman civilization, such as personal security—and, after payment of Roman taxes, security of property—arts and letters, elegant and commodious buildings, and roads, to which no roads they have had since can bear comparison, except our present railways. It is easy to imagine that under such circumstances, and with the instruction and encouragement imparted by Roman civilization, British agriculture improved and flourished, and not only supplied its own inhabitants, but exported corn to Rome. The Romans were compelled by their domestic troubles finally to abandon Britain, A. D. 449.

449 to 1066.—*Now Commenced the Dark or Middle Age.* The Picts and Scots ravaged the South country, and the divided Britons, unable to cope with their fierce and barbarous enemies, called to their aid the Saxons. These wild, warlike and pagan people liked the country so well that they speedily sent for their countrymen, and eventually became masters of Britain; having, however, to sustain frequent and bloody wars with the piratical Danes, who occasionally overran portions of the country. Agriculture thus fared badly for several centuries. * * * When the inhabitants became, by admixture, Anglo-Saxons, a great improvement gradually took place. They no longer sold their wives and daughters as slaves, and they appear to have been possessed of the most of the usual live stock and implements of ancient agriculture. Murrain and famine alternately diminished their live stock and population, much as it does now in ignorant and pagan nations; and one-fifth of their herds perished every winter from exposure and want of food. The wool of a sheep was valued at two-fifths of the price of the wholesheep.

A. D. 866.—In King Ethelred's time, the following prices were fixed by law:—A man or slave 20s., horse 30s., mare or colt 20s., ass or mule 12s., cow 5s., ox 6s., swine 1s. 3d., sheep 1s., goat 2d. The lands belonging to the Church were, generally, the best cultivated. The monks themselves engaged in the labors of the field as a means of support. Then, as now, the superior education, and consequent intelligence, of our clergy enabled them to improve agriculture.

1066 to 1400.—In the eleventh century William the Norman conquered England, and the foreign knights and others who accompanied him, or who afterward settled here, made many improvements in horticulture and agriculture. They were, however, great game preservers, and their forest laws for its preservation were severe in the extreme. The drainage of the fens of Cambridge and Lincolnshire were commenced at this period, A. D. 1220. Essex was one vast forest, and stood foremost in Domesday Book for its number of pigs, which there found their food under oak and beech trees—the number was 92,991. A great many goats were kept as stock; and, even now, very old men tell me of the fierce she-goats which rushed out upon them, some eighty years since, when Tiptree Heath was a wild and wooded waste. Windmills were not known in England till about 1150. The shoeing of horses with iron is not supposed to have been used before the Conquest. Horses were rarely used in agriculture. * * * In 1317 harvest was all gathered by the 1st of September, and wheat fell to one-twelfth of the price at which it had been sold a few weeks previously. The fluctuations in the prices of wheat seem to have been much greater formerly than of late years. In 1202 and 1223 it was 36 cents per bushel; 1237, 10 cents; 1243 and 1244, 6 cents; 1246, 48 cents; 1257, 72 cents; 1258, 60 cents; 1270, $2.88 and $3.84; 1286, 8 cents and 48 cents. Considering the high value of money at those periods, it is easy to imagine what suffering, starvation and disease must have followed the years of scarcity. Such enormous fluctuations could only arise from a concurrence of other evils with an unpropitious season, such as invasion, civil war and rebellion, from which, thank God, we are now exempt; and we ought highly to prize the blessings of good government and good laws, well administered, which we now enjoy.

A. D. 1400 to 1480.—During this period our flock-masters must have improved the quality of their wool, "the cheap and principal commodity of the realm," for it was highly esteemed abroad and the demand exceeded the supply. I presume the mutton was also improved and that the animals were better fed, for in former times sheep were kept for their wool only. "Villains" were gradually emancipated, and became free laborers, and a new class of cultivators arose, paying money rents. At the Hawstead Manor Farm, Suffolk (Sir T. Cullam's), the produce of sixty-one acres of wheat for three years was two hundred and ten quarters, about nine bushels per acre, and, as the price was low, this was no doubt a good crop, and certainly the farming would be quite equal to or above the average. The quantity of seed sown was two and a half bushels, so that the return was hardly four to one. The produce of the different grains at that period on that farm was, wheat 8 bushels, barley 12, peas 12, and oats 6—a very small return for the quantity of seed sown, and something like what is now grown in many foreign countries that supply our market. In the fifteenth century much arable land was laid down to pasture, on account of the high price of wool, and also because of the scarcity of labor. The villains having been made free laborers betook themselves to handicrafts and manufactures. Land appears to have been let still at cheap rates, say 4d. to 8d. an acre. * * * The use of coal now became more general. How oddly this sounds to us, who know that last year the consumption of the twenty-one mile circle around London was 5,000,000 tons, of which 1,500,000 tons came by rail.

1408 to 1608.—During this period, a large advance was made on our agricultural condition. Farmers passed from wooden trenchers and wooden spoons to pewter, and even in some cases to silver. Their straw pallet was exchanged for a feather bed; and their rents were doubled. The softer sex also found their condition ameliorated. All this took place concurrently with, and as a corollary to, our progress in manufactures and commerce.

1600 to 1660.—Bligh, in his "Improver Improved," (1652) pointed out the advantage of growing clover for

cattle; and Sir Richard Weston soon after published an account of the cultivation of turnips in Flanders, by which cattle and sheep might be fattened in winter.

1630 TO 1760.—In 1710 the winnowing machine was introduced from Holland: in Scotland, its use was denounced from the pulpit as impious The thrashing machine was first employed in the northern parts of the island about the same time. No instrument for saving labor has made such slow progress; and in many extentensive districts its use is unknown even in the present day. In 1732 Jethro Tull commenced his experiments in drilling and horse-hoeing on his farm in Berkshire; but thirty years elapsed before they excited much practical attention, and before the really valuable parts of his system began to be adopted by intelligent agriculturists. Toward the close of the period, the extension of the turnip husbandry was already effecting the most important revolution in the history of modern agriculture. Those improvements were also commenced which have gone so far toward eradicating the defects of the ancient breeds of domestic animals in this country. Bakewell, the great improver of live stock, commenced his improvements about the year 1760. The writings of Evelyn, published near the close of the last period, had awakened a taste for horticulture and planting. Gardens became a luxury, on which large sums were expended. The cottage of the laborer began to be considered incomplete without a plot of ground for the cultivation of vegetables; and a great increase took place in the quantity and variety of vegetables consumed by the laboring classes. The farmer who did not provide plenty of greens, peas and beans for his servants to eat with their salt meat, was despised for his parsimony. By the middle of the century, the cultivation of the potato became almost general in every part of England, and the prejudice against its use had been nearly removed; but in some quarters premiums were still resorted to, for the purpose of bringing this root into consumption amongst the poor.

1760 TO 1860.—This is decidedly the most progressive era in the history of British agriculture—which progress was still mainly owing to our great manufacturing advance, and consequent rapid increase of population. Judging of the future by the past, what are we to expect in agricultual progress from 1860 to 1960, with a population of fifty or sixty millions, instead of thirty millions? Our population was, a century ago, probably not more than six or seven millions: now it is thirty millions. The mind naturally asks, How long is this manufacturing increase to go on, and when shall our manufactures have attained their climax, and when shall commence their decline? Because then shall, indeed, begin the decay of English agriculture.

Mr. M. gives a chronological list of the many important agricultural events of the last hundred years. We are compelled to allude to them very briefly.

Legislation affecting Agriculture.—Our senators appear to have been constantly attempting to set agriculture in order, according to their own notions, by Acts of Parliament. They do not appear to have succeeded very well in their objects, for most of the Acts fell into disuetude, or were evaded; some of them would sound oddly at the present day, such as: No tenant should rent two farms. No tenant farmer should have more than 2,000 sheep. 1538. That the King should have half the profit from all land converted from tillage into pasture until a suitable house was built upon it. Every cottage was to have four acres of land, and no more than one family in each cottage. There was an act to restrain the excessive use of malt, and justices were empowered in quarter sessions to suppress the making of malt, and the number of maltsters. Farm-houses that had decayed were to be rebuilt compulsorily, and twenty to forty acres attached to them. Roast beef at Christmas appears to have been a luxury of modern times—thanks to turnips, mangel, cake, clover and other winter food; for, formerly, as soon as the depasturing season ended, the fat animals were killed and salted, to prevent their becoming lean again—the hay being required for cows and young growing animals. Bullocks and sheep, too, were then a long while growing to perfection for the butcher, much as it is now in many foreign countries, whose agriculturists, when they visit England, express surprise that our live stock should be so large and so fat at so early an age.

One hundred years ago we were without either roads, canals or railroads, and in winter the country was impassable. After carriages were invented, the nobility and gentry had their "footmen," who ran by the sides of the carriage, and with their long sticks, which are now used for ornament, propped up the carriage when in danger of turning over.

The Government Drainage Loans.—If evidence were wanting of the necessity of aggregating capital in the hands of great companies, for the purpose of agricultural improvement, we should find it in the eagerness with which the first government loan of two millions sterling was taken up and made use of. Our keen Scotch friends were so alive to its advantages that they took the whole, and our less 'cute Southerners were too late in their application. So in the second loan of a million, a portion was reserved for the tardy Englishmen. A noble duke, a great and acute improver, who had an immense estate in Scotland, told me that he had a large slice of the first loan, and would have taken much more had he been allowed to do so.

Implemental Improvers.—We owe to Tull the drill and horse-hoe, to Bell the reaper, and to Meikle the threshing machine. The last two were Scotchmen. It is hardly possible to over-rate the important benefits these implements will confer on British agriculture. It is a singular but significant fact that although Mr. Bell had used the reaper (invented by his brother, the Rev. Patrick Bell, still living at Carmylie, near Arbroath, who in 1828 received a £50 prize for it from the Highland Agricultural Society) for thirty years, no one seemed to know anything about it; and when his machines, Americanized, appeared at the Great Exhibition of 1851, they were regarded as curiosities and novelties. The public trial of them, on my farm, in 1856, in the presence of a distinguished company, at once launched them into practical use. I have used one of them ever since.

Agricultural Implements and Machinery.—If I wished to convince agriculturists of the importance of steam, I would, in their presence, ask the implement makers how much they would enhance their prices if compelled to go back to manual labor or horse-power as a motive force? The answer would probably be, "It is not a question of price, for we could not produce enough even at an advance of 50 to 100 per cent." As I wander through the implemental labyrinth at our great shows, I ponder in my mind whether farmers entertained this question, and applied it to their own case. We no longer see the farmer or his men making their own wooden plow and other tools at home as in ancient times; but the steam-blast, the steam-hammer, the steam circular saw, and the steam-turned lathe, have transformed our blacksmith-shops into gigantic and money making factories, whence agriculture derives the cheap and effective means of successful competition with less advanced corn-growing countries. It is my lot to welcome many foreign agriculturists, and as I chatechise them, I often wish I had by my side the agricultural alarmist. He would hear them say, "We have no roads, or we can not use them in winter; we have the old wooden plow; we never hoe our corn, our men do not understand this machinery; we do not drill our corn; we keep our sheep three or four years before they are fat; we use no oil-cake—our animals live on straw in the winter; we are very far from a market or river—we have no railroads or canals; we grow three, four or five bushels for one." A brother of a neighbor of mine emigrated to America, and, writing to his brother, said: "I expect to see something of the country, for so-and-so is going out with a load of corn to market (Chicago); he will be gone three weeks, as it is fifty miles away." This I know to be a fact. It is a variety of these difficulties which beset the foreign cheap producer; and it is the reverse of all this that comforts and profits the British farmer.

The Establishment of Farmers' Clubs and Agricultural Societies has had a most beneficial influence on agricultural progress, which has been stimulated and improved by competitive exhibitions, by the reading of papers on agricultural subjects, by the discussions following thereon, and, above all, by the diffusion of those readings and discussions by means of the agricultural press. The Smithfield Club, by its early and original Exhibition of Live Stock, deserves special commendation as the pioneer in animal competitive exhibitions, which have dispelled self-sufficiency and developed animal perfection.

Among the greatest benefactors of agriculture stands Baron Liebig. If an accurate account could be taken of the quantity and value of the additional food produced through his discoveries, the world would be grateful, and we should look upon him as a great benefactor to mankind. By the light of his great mind, the darkness of agriculture, with regard to the nutrition of plants and of animals, is being rapidly dispelled. Like a great magician, he has taught us to convert bones and mineral apatite into milk, cheese, mutton and beef. He has taught us that the earth on which we tread forms an indispensable portion of animal and vegetable structure. He discovered floating in the passing breeze the fat and muscle of our bodies. The once exhausted pastures of Cheshire owe to him their fruitful regeneration, and every Cheshire cheese should in gratitude bear his impress.

The Future of Agriculture must be based on a General Use of Steam Power.—This has made manufacture what it is, and will make agriculture what it ought to be. At present we can scarcely say that agriculture has used steam—possibly she may now have 50,000-horse power; she will soon have at least a million of horse power. Every farmery of 100 acres will, for the purpose of cultivation and general manipulation, require four-horse power.

Public Companies for Improving Agriculture.—Assuming and believing that great and comprehensive improvements in agriculture will originate with public companies, I prognosticate that a combined system of irrigation—town sewage irrigation—and railroad transit must form an important feature of any great district operation. The principles of drainage, steam cultivation, covered buildings, steam machinery, etc., so well understood by our agricultural engineers and surveyors, would naturally form a portion of every such improvement.

Land Draining.—It would be an insult to this Club to enter into details on this now well understood subject. Its influence on the quality and quantity of the food of the people is, over a large area, enormous; but still non-drainage is the rule, and drainage the exception. In this respect there is a grand future for agricultural improvement.

Meat making.—Future advances in agriculture will, I venture to predict, be based upon and identified with the production of a much larger acreable quantity of meat than we at present produce. The constant increasing prices of meat plainly testify that demand is exceeding supply, and that foreign nations can not make up the deficiency. Our acreable area being limited by the ocean, our only means of doing this must be the extensive use of purchased food and manures, and by the economy of the sewage of our towns. The consequence of this improved system will be felt in our grain crops; for the more meat you produce the more manure you make, and, consequently, the more corn per acre you will grow on the arable portion. This production of more meat will necessitate a better knowledge of the mode of producing it, having regard to a profitable result.

"*Burn your Clay into Brickdust,*" will be a motto with every heavy land farmer. I know one who for years has continued burning a clay hill. It provides him with healthy bedding for his stock, and with alkalies for his root crops. It permits him to consume his straw in food, instead of wasting it under foot. It renders his land friable and more economical to work; and it has largely increased his green crops and profits. This is also my experience in the matter.

In conclusion, it is a great mistake to suppose that farmers are naturally more prejudiced than other men. It must be remembered that it has been their misfortune, and not their fault that the difficulty of intercourse prevented those examinations and comparisons which the railroads and literature of recent times have permitted them to make. That there exists a creditable desire to avail of such opportunities has been abundantly proved by their overwhelming attendance at the great annual and other exhibitions of stock and machinery. My object in reading this paper has been, not to find fault, but to stimulate. I know the difficulties of agriculture: I know that we can not control the seasons; but we may, by improvements, so moderate their ill effects as to avoid those famines and sufferings which, in less favored times, afflicted this happy country. For the future, let agriculture assume more of the manufacturing character; and let the question be, not what it will cost, but what it will pay, to effect agricultural improvements.

CULTIVATING AND HARVESTING PEAS.

A CORRESPONDENT in Erie Co., N. Y., in reply to an inquiry in the March number of the *Genesee Farmer* in regard to the cultivation and harvesting of peas, best varieties, etc., says:

"We have grown different varieties of field-peas side by side, in the same field, a number of different seasons, and have invariably found the Marrow-fats to yield the most; but it is said the smaller varieties do the best on dry, sandy soil. Good crops of peas may be grown on nearly every variety of soil, but they are especially adapted to wheat land, and may take the place of the summer fallow; in which case it would, perhaps, be best to turn under the sod in the fall, and in the spring harrow smooth; then sow and plow in the seed from three to five inches deep, and afterward go over with a light harrow lengthwise of the furrow. In short, all that is required, is to pulverize the soil and get the seed covered sufficiently. Much harrowing brings the seed to the surface, so that a shower will leave a large portion of it uncovered.

"The most dreaded labor in harvesting is cutting, because it is least understood. Most people, trying to mow peas for the first time, go to work as they would to cut lodged grass, and soon conclude that it is more than they are worth to mow them. I will describe what I think to be the best way of mowing: Suppose I have a square field, the boundary lines running north and south, and east and west—the peas lodged toward the east. I go (equipped with a dull scythe, well hung out on a strong snath) to the southwest corner of the field, step down to the south side ten or twelve feet, run my scythe under the vines full length with the point toward the north, back a step or two toward the west, which pulls the vines toward me; then put my scythe back on the ground behind the bunch and step toward the west again, and repeat the motion until it is rolled to the west side, at which time I have a roll four or five feet long about the size of a flour barrel, and a piece of ground cleared five feet by twelve. In this manner I go across the west side of the field, taking a strip twelve feet wide, in this way I get them in bunches of suitable size, and rolled up so they can be handled without scattering. It will be awkward work at first, but after a little experience a smart man can mow an acre a day, if they are all lodged in the same direction. It is sometimes difficult to get at them on account of being twisted in different directions by storms; but usually all lie the same way, and by observing the above directions and beginning on the right side,—which of course depends on the way they lean—any man can learn to mow peas without much difficulty.

"Peas should be sown early, unless there is danger of injury from the bug, in which case they should be sown about the middle of June. If stung by the bug, they may be ground immediately after threshing. If the preceding crop has been injured by the bug, the seed should be scalded. Peas and oats are sometimes sown together, and, under favorable circumstances, the yield is almost incredible."

The English farmers cut their peas in the manner described above, except that they have a long-

handle' hook for the purpose. The bug is the great drawback to the cultivation of peas in this section; but we are satisfied that they can be profitably raised for feeding to hogs, in spite of the bug. Of course the peas must be fed out early. If left till November and December, the bugs instead of the pigs will eat them; but by commencing early enough, the pigs will eat up the bugs and peas together before much damage is done. The pigs might be turned on to a portion of the peas on the land, before the crop is ripe enough to harvest.

THE COW AT CALVING TIME.

As the time of calving approaches, says a writer in the *London Mark Lane Express*, the cow should be separated from the herd in summer to a convenient paddock; in the winter to a warm, clean, and well-ventilated hovel or barn, where she can be constantly watched, and well, but not profusely fed. As "labour" comes on, and which may be anticipated by the falling of the flank, and depression of the croup, she should not be disturbed, but for a time left to her own natural efforts. When in the judgment of the herdsman the calf is sufficiently advanced to be felt, he should gently insert his hand in the uterus, to ascertain that the presentation is right, *i. e.*, that the two fore feet and the nose of the calf can be felt; if so, she may be left a reasonable time to deliver herself, but he may occasionally assist a little. Should the labour be somewhat protracted, he must then summon assistance, and take the calf away, otherwise the strong continuous paining of the cow will frequently kill the calf ere it is born. The common course pursued in taking away a calf is to cause the cow to stand up, and then to draw a little forward the feet, and fasten around the legs and above the first joints a cord of sufficient strength and such pliability as not to bruise the legs. The hand or fingers should then be inserted, so as to place the head or nose right, *i. e.*, just upon, or rather slightly between the legs. The assistants may then gently draw the legs forward, and bearing the cord downwards; the herdman meanwhile endeavoring to push gently back any portion of the uterus brought prominent by the head, and aid by gentle means as he best can the delivery. As soon as the calf is brought forth its nostrils should be immediately cleansed from adhering mucus, the mouth opened, and when it has breathed freely it may be rubbed carefully with a wisp and then presented to the mother, who will at once lick it freely with her tongue, which acts as both brush and curry-comb most advantageously. In a few minutes it should be lifted up, be supported, and enticed to suck. If it sucks freely, very little danger is to be apprehended, and the dam and calf may be safely left together. Warm water only should be given to the cow, and her food should be of a mild and nutritious character, avoiding cold roots or the like. The calf should be left with the dam at least three days, in order that it may draw its food at first naturally, and as it requires it. By this time the first milk or beastlings, acting as a gentle purge, will have passed through its bowels, cleansing them of all mucus; it may then be safely removed to the calf house to be brought up by hand if required.

In cases of wrong presentations the cow should be carefully examined by inserting the bare arm as far as possible into the uterus. Upon ascertaining the position of the calf, such judicious means must be adopted to get it away as the best judgment dictates. In a presentation, when the hinder parts come first, the calf may occasionally be drawn away; but generally in such presentations the legs are doubled backward; it is then necessary to push the calf back into the womb or calf-bed, and if possible turn it, or get forward the legs, for it cannot come forth doubled up as it is; in either case, it is a most difficult task to get it away safely, and often results in the death of both dam and calf. In my own business, I use a very homely instrument for pushing back the calf into the womb. It is the shaft of a spade or shovel. The hilt serves for a shoulder-crutch; and the bottom of the shaft is cut into a little hollow, or curve. This little hollow is placed just under the tail of the calf, so that the sides press on the tuts of the calf. The shoulder is then applied to the hilt; and by a very gentle, persevering push, it is forced back. The arm is then inserted, and an attempt is made to bring forward the feet, or, if possible, the head and fore-feet. This, however, is generally impossible; however, the hind-feet may usually be got forward; but the turning them from their bent position is almost sure to lacerate the womb, and cause death. Something, however, must be done; and it is worth the trial—it does not always end fatally.

In extremely violent cases the womb, or calf-bed, will protrude and fall down. This is a very difficult thing to restore, with safety, to its proper place, owing to the continual paining of the cow. It should be well washed in warm water as quickly as possible, before it has much time to swell. The herdsman should then, with his doubled fist, proceed to push it into the uterus, where it must be secured by strong ligatures sown across the opening. The cow should have a strong dose of laudanum, to quiet her for some hours, so that the calf-bed may have time for the swelling to subside. Subsequently, she should have a little warm water, with some meal stirred in. This should be given repeatedly, but sparingly, so as not to load the stomach. No heating nor any purgative drenches should be given. The great thing is, to keep the cow quiet.

The discharge of the afterbirth is not of any great moment. Cows partially exhausted by calving will be a long time before they pain themselves so as to cause the expulsion of the afterbirth. I have never known any great harm arise from its remaining even for some days.

Cows after calving should be carefully fed with nutritious food, in small quantities, often repeated; and it is certainly best to give cooked or boiled food, as it prevents more generally indigestion and flatulent cholic. At all events, sweet and easily digested food should be given. Should the udder swell from excess of milk, or the incapacity of the calf to draw it all away, frequent milking is requisite, and it should be hand-rubbed well, with frequent washings of warm water and soft soap, or with warm bran water. The teats occasionally become sore; the same applications should be resorted to, and, in addition, a little lard, olive oil, or even cream, should be gently rubbed on, particularly in cases of pustules arising, or scab.

RENOVATING PASTURE AND MEADOW LANDS.

At one of the late Agricultural Meetings in Boston, the subject for discussion was "The best methods of renovating pasture and meadow lands." The Chairman, Mr. Fisk, said:

There were many pastures in the State that had long been growing worse, both in regard to the quantity and quality of the feed they produced. One cause of the deterioration was overfeeding. Another cause was exposure of the pastures to the winds; they were blown to death. The best pastures in the section where he lived, were on the east and south sides of hills, with woods on the west and north. The benefit of the protection which the woods afforded were seen to be so important, that farmers were beginning to plant trees around and over their pastures in such a way as to break the force of the coldest winds. One mode of improvement which he would advise, would be to keep for awhile only half the usual amount of stock on pastures; mow off what grass and bushes were not eaten, and leave them to rot on the ground. He had known pastures to be improved by leaving them a season without feeding, and the next year feeding them in the usual way. Many pastures were set to "white grass," which no animal will eat unless starved—a sheep would grow poor on an acre of it. In some instances, this land had been plowed to advantage. Clover seed had been sown at the rate of 6 lbs. to the acre, 100 lbs. of plaster applied, the crop plowed in and buckwheat sown; this was taken off, and clover sown again. This course was continued five years—the buckwheat yielding about twenty bushels per acre. The land then produced good clover and grass for pasture. Lands thus treated had been increased in value from $8 to $25 per acre. But some pastures can not be plowed; neither is it an object to carry manure to them. On some such, sheep might be kept to advantage. Where cattle or sheep are always kept on the land, and proper attention is paid to pulverizing the manure, the land will not deteriorate.

Mr. T. J. Pinkham, of Chelmsford, thought the lands of the "back towns" had become poor by the crops which had been sent to the cities, and from this cause the Great West would one day become as poor as New England. Our pastures had been overstocked, and he did not believe they could be kept up by stock.

Mr. Bushnell, of Sheffield had improved his pastures with sheep, and he believed them to be the best means that could be used for improving our hill pastures generally.

Mr. Wetherell considered that the improvement of pastures which can not be plowed must be effected by top-dressing. Where plaster will operate, it is generally the cheapest manure for such lands. It had been very beneficial on some of the hill pastures of Worcester county. Leached ashes had been used with advantage. Guano was also recommended, which it was contended is a manure, and not in any sense a *stimulant* of plants.

Mr. Proctor, of South Danvers, considered that the first point in regard to the improvement of pastures, is to avoid overstocking, particularly when the grass is first starting. He had been familiar since 1810 with a pasture of sixty acres in South Danvers, which has generally kept more than twenty head of cattle besides one or two horses. It is divided into three lots, one of which contains thirty acres. It has never been plowed, and he thought could not be improved by plowing; the bushes have been kept down by cutting them or taking them out by the roots, two days work in a season being all that has been required for this. He thought favorably of feeding pastures to some extent by sheep.

Mr. Lathrop, of South Hadley, gave some striking facts in regard to the effect of plaster on his pastures. Previous to his purchase of the farm, the owner could hardly get grass enough on 600 acres to keep a yoke of oxen, six cows, and a few young cattle. He commenced the application of plaster thirty years ago; had applied about 100 lbs. per acre once a year, or sometimes once in two years, and this was all the manure that had been used. The pastures had constantly improved, and will now support a cow to the acre.

Mr. Fearing, of Boston, spoke of the management of his pastures at Hingham. He had one lot of 28 acres on which cattle and sheep had been fattened for 40 years. It is now worth $50 to $55 per acre. His mode of destroying bushes was to mow them in autumn and burn them; then stock with sheep for one, two or three years. He had 20 acres which was now under this process. The sheep gnawed it so closely that some persons thought it was injured—they clipped off every leaf of the briars and bushes as soon as it started. He thought the only way of making our pastures in the eastern part of the State profitable, was by keeping sheep on them. In many instances he believed that sheep might be put with cattle, in equal numbers, and the cattle will do as well as if there were no sheep.

[This last remark needs qualifying.—Eds.]

ITEMS OF AGRICULTURAL EXPERIENCE. No. II.

15. A judicious rotation of crops, combined with good tillage, good fences, and substantial buildings for sheltering stock, is the sign-board of an intelligent farmer.

16. Grain crops exhaust the soil faster than pulse crops, these than root crops, and grass the least of all crops, provided it is cut before the seed is well formed.

17. Root crops require deep plowing, heavy manuring, a thorough pulverization of the soil, and good after-culture to keep down the weeds, and they then leave the land in fine order for spring grain, to be seeded down with grass or clover.

18. Barley succeeds best after root crops or corn, and requires a well pulverized yet compact seed-bed, and a rich, well drained soil.

19. Oats will do well on land too moist for either wheat or barley, especially where the soil contains a fair proportion of vegetable humus.

20. Spring wheat, like barley, requires a rich soil that has previously been well cultivated, but should not have barn-yard manure applied directly to it; and it is a matter of importance to get the seed into the ground as early as the soil and the weather will admit of its being done in a workmanlike manner. Steeping the seed in brine or sprinkling it with copperas water, for the prevention of smut, should never be neglected.

21. Peas succeed best on a clean sod or clover ley plowed under to a depth of at least seven inches; if done in the fall, so much the better. Sow as early as a three-horse cultivator or heavy harrow can be dragged through the ground.

22. Corn requires a light, warm soil, and will amply repay for any reasonable amount of manure that can be applied to it.

23. Good culture and frequent stirring of the soil during the early stages of the corn plant, is absolutely necessary to ensure a successful crop.

24. Potatoes succeed best on dry, light soils that have been manured the previous year. A mixture of ashes, gypsum and salt, appplied at the rate of a small handful in each hill at planting time, is a great help toward preventing the rot.

25. Land should never be seeded down to grass or clover until the soil has been thoroughly cultivated, and is free from weeds of every description.

26. It is better to sow too much than too little grass seed. Less than 12 lbs. of mixed grasses and clover per acre seldom results successfully.

27. Permanent grass lands are greatly improved by spreading composted manure over them during the fall or winter, and harrowing well in spring. An addition of two bushels of unleached ashes per acre in spring will nearly double the crop of grass.

28. A change of seed from one locality to another, provided it is of good quality, will always be found beneficial. J. MACKELCAN, JR.

Hamilton, C. W.

MEMORANDA FROM DOWN EAST.

METEOROLOGICAL.—January gave us cold, steady weather. The temperature for the month was 12.90°, being 7° colder than for January, 1860. Extremes were 32° and 17°; warmest day, 25th; coldest day, 13th. Depth of snow fell for the month, 44½ inches! Snow fell on 16 days of the month. Sleighing throughout the month. No rain storm during the month.

The mean for February was 25°. Extremes, 46° and 32°; warmest day, 12th; coldest day, 8th. Depth of snow fall, 13.5 inches. Sleighing during the month. The 8th was known in this locality as "the *cold day*." The lowest the mercury sank during the day was to 32° below zero, at 6, 7, and 8 A. M.; the highest it rose was 19° below zero, at 5 P. M. The mean for the day was 26.3° below zero. At 6 P. M. of the previous day, the thermometer indicated 24° above.

An old adage says, "Snow is the poor man's manure." If such is the truth, we may expect a good harvest next season, for we have had, up to this date, 6¼ feet of snow, with fair prospects of plenty of time for half as much more. Indeed, our fields have had a warm covering the whole winter. The grass looks well beneath the snow, and if it is covered a few weeks more there will be no cold to injure it. The ground is but slightly frozen, and in some places in woods and swamps it is entirely open.

SEEDING IN OATS.—We have always considered oats to be inferior to other grains for sowing grass seed with to obtain a "good catch," as their rank growth and dense mass of foliage shade and smother out the tender grass plants. Wheat and rye are good crops to sow grass seed with; and it should not be put in to any great depth—a light brushing in after the crop has been harrowed in, is sufficient.

POTATOES.—There has been exported from this place, the present winter, upward of fifty thousand bushels of potatoes. Boston has been the principal market, although some have been sent further South. The price has varied from 40 to 48 cents per bushel, and they have consisted almost entirely of white varieties (Jackson and Foote), as these are the leading kinds cultivated. They have been quite free from rot. Out of two hundred bushels just taken from the cellar, about five were found diseased. The colored varieties are being left behind in cultivation, although a variety called the Californias are being grown to a considerable extent, they being great producers, but not of very good quality; yet some farmers say they can make as much by raising them at 25 cents per bushel, as by the Jacksons at 50 cents. It is considered good policy to change the seed every few years from clay soils to upland, and *vice versa*; many maintaining that both the product and quality are thus increased.

March has commenced warm and comfortable, with prospect of continuing so.

Belfast, Maine. GEO. E. BRACKETT.

ANTS IN BEE-HIVES—ITALIAN BEES.

EDS. GENESEE FARMER:—Having seen in your last number an inquiry as to the best means of preventing ants from injuring bees, I take the liberty of giving a little information on the subject through the columns of your very interesting paper.

I have found that the great secret in keeping bees and have them do well, is to keep the stocks strong. If a stock is strong and healthy, they will defend themselves against almost any invasion from other bees or from insects of any kind. The small ant will frequently form its nest near a swarm of bees to keep warm, and not injuring the bees in the least. Sometimes the larger black ant does a good deal of damage by carrying off honey from small, weak stocks. The best means that I have ever tried, is to set the hive on a stand with legs, and set each leg into a dish of water. This will entirely prevent the ants from getting into the hive. If any of the readers of the *Farmer* who keep bees will try this, they will find it to prove entirely satisfactory.

I also noticed in your last number, a request for some information concerning the Italian bee. This bee is becoming introduced considerably into this country. They are far superior to our native bees in every way. They are larger, hardier and more active; will stand the cold and heat much better than the native bee; will make more honey, and swarm more frequently. The Italian bee will not sting unless intentionally annoyed or injured, or when it is attacked by robbing bees. It will then defend itself with undaunted courage; and such is its extraordinary vigor and agility that it is never overpowered as long as the colony is in its normal condition. The proper way to introduce the Italian bee is to procure a queen, and remove the queen from the common hive, and after two or three days give them the Italian queen. In this way the old race will gradually disappear and be supplanted by the new. H. A. SPENCER.

Erie Co., Pa.

HINTS.

FARMERS, spring is upon you. Its demands and duties will crowd upon you thick and fast. Amid the greater demands do not overlook the smaller ones. Lest you should, let one of your kind suggest a few hints.

As to your year's stock of wood: if you have not cut and piled that under your wood-shed, you may as well let that pass; you can haul one load at a time during the season, and cut it each night and morning, Sundays excepted, for it will be green and chop easy; it does not burn out so fast as seasoned wood; then there is something so interesting about going out to the wood-pile and pitching in an hour or so in harvest-time, to say nothing about the good humor that such an arrangement keeps the women in.

Those shade trees in front of the house and along the street that have never been set might as well be postponed to some other time; you can get along as well without them as you have done heretofore; they might get broke down, and it would take some trouble to get the elder bushes and other rubbish out of the fence corners.

Those old dead apple-trees that you were going to re-set with thrifty grafted ones, and the fixing up the orchard fence to keep the cattle and sheep out, might be left to some other time, or when all the old trees were dead, so that you could set the whole orchard at once.

As to fixing up fences, it is a bad time to do it in the spring, farmers are so busy; then the cattle have got such a notion of jumping the fences that they will jump them anyhow. "Old Bose" is a better remedy than high fences; it is far easier to say "sic," "take 'em; lug 'em;" than to always be laying up rails and nailing on boards.

If your gates have settled so as to require the strength of a man to tug them around, all the better; they will not be opened only when necessary, and then only by men who will not forget to shut them; the wind never blows open such gates, neither do boys injure them by swinging on them.

If your smaller gates have a hinge or the fastening off, never mind; you can do that some odd spell; if the hogs get into the garden and eat up the early peas and vegetables, or the old sow gets among the sheep and eats up a half-dozen lambs, take a club, call the dog, and settle the account at once; it will give you more real satisfaction than the fixing a half-dozen gates could.

If any boards have got off from the barn, never mind such trifles; it must be a poor barn that can not stand having a half-dozen boards off. If you run for every such trifle, what will become of your leisure moments?

If the banks of your ditches, by freezing and thawing, have slid in and filled them, you had better not clean them out, for they will surely fill up again, sooner or later.

A very convenient place for old and new implements, such as wagons, sleighs, sleds, plows, harrows, scrapers, rollers, and old bits of boards, timber, plank, refuse brick, cobble stone, apple-tree brush, etc., is along the street in front of the house. How can a man afford to shelter such things? Why! it would require nearly a half-acre roofed over.

The place for whiffletrees, chains, clevises, axes and hoes, is to drop them where last used. Many a farmer knows better than to make a fool of himself running to carry such things to some hiding-place for shelter. Mowing-machines, horse-rakes, cradles and scythes, should always be left in the field where last used; for ten chances to one if they do not require to be used in that very place the next time.

Plow shallow—plant and sow late.

Your manure should be piled against the sides of your barns and stables, to preserve them from rotting. If the heaps get so large as to be troublesome, move your buildings, or do as another man did—make a bee, and haul and scrape the manure into the river.

Take no agricultural papers, unless you want to be humbugged with "book farmin'." "They have come to be filled with all manner of stuff, such as short-horned bulls, shanghæ chickens, china geese, gaunt-gutted horses, deep plowing, compost heaps, made of bogs, dry leaves and dung, ashes, lime, salt, suds and hen-roost scrapings, all mixed pell mell, and soaked with rain water and urine, which must be mixed with guano, poudrette, and nobody knows what. And then they are brimfull of draining, under-draining, tile-draining, and machines for digging potatoes, catching rats, and sucking cows; telling how to make flap-jacks, nice cake, roasting turkeys, and stuffing chickens." Strange pass, surely; but my space is up. W. L. CURTIS.

Near Clyde, Ohio.

VITALITY IN HORSES.—Some experiments have recently been made in France by persons skilled in the veterinary art, with a view of ascertaining how long horses may live without food in certain contingencies, as, for example, being shut up in beseiged places. The following results have been noted: A horse may live for twenty-five days without solid food, and merely drinking water. He may live seventeen days without eating or drinking. He can live only five days when consuming solid food, without drinking. After taking solid aliment for the space of ten days, but with an insufficient quantity of drink, the stomach is worn out. The above facts show the importance of water in the sustenance of the horse, and the desire the animal must feel to be supplied with it. A horse which had been deprived of water for three days, drank eleven gallons in the space of three minutes.

SHEEP-KILLING DOGS.—Many remedies have been prescribed to prevent dogs killing sheep—such as bells on some of the flock; chaining a block to the dog's neck; cutting their tails off just back of the ears, etc. The latter, no doubt, will always prove effectual when practiced; but since this remedy does not command general favor, we will venture to prescribe another, which we believe will answer every purpose. It is simply fastening a small bell upon the dog's neck. Murderers choose to do their bloody work in silence. The dog, with a bell on his neck, appears to know that the perpetual tinkle, tinkle, which always accompanies him, would betray him, and consequently stays at home.—FARMER, *East Cobleskill, N. Y.*

DURABILITY OF POSTS.

A CORRESPONDENT of the *New England Farmer* reports an experiment on the durability of posts, which we re-arrange and condense. The timber used was "Yellow oak;" it was cut in winter, and each log was large enough to split into two bar-posts, which were set the following spring:

1*st pair*—Butt end down, one charred. Both rotted off the third year; the upper ends were then put in the ground, and they lasted seven years more.

2*d pair*—Butt end down, one salted by boring and plugging. Salted post gave out the second year; the unsalted the fourth year. The ends were then reversed, and each lasted about eight years longer.

3*d pair*—One butt down, the other butt up. The butt rotted off the third year, the other the fourth. The ends were reversed, and the new butt rotted one year before the other, although the latter was set one year the soonest.

4*th pair*—Small ends down, one salted. Both rotted off the fourth year; and being reversed, lasted four years more.

It will be seen that the charring did no good, and salting a green post is useless if not injurious. All the experiments indicate decidedly that posts set reversed last longest; and it appears that seasoned posts last longer than green—the seasoned small ends in the first experiment lasting about twice as long as the green small ends in the fourth. —*Country Gentleman.*

CASTRATING AND DOCKING LAMBS.

EDS. GENESEE FARMER:—The time is now at hand when sheep growers should pay more than ordinary attention to their flocks, especially to the ewes and lambs. The mode and time of docking and castrating my lambs, which I have adopted for the past twenty years, and which I have found very successful, I can confidently recommend as follows:—When the lambs are from three to twelve days old, they should be docked and ear marked (if that is practiced) by the owner. The tail should not be left more than one or one and a half inches long, as the sheep not only look better with a short tail, but it keeps much cleaner. These operations should be performed in good weather. Get up your ewes and lambs in the latter part of the afternoon, in a dry yard or shed. Drive them into a pen, where you can select out the lambs without raising them much. As you pick off the lambs put them in a snug pen, (I put boards at the sides and ends of hay racks and put the lambs in that,) and let the ewes out into the yard. If the weather is pretty hot, let the lambs cool off before disturbing them further. If convenient, have a man to hand them out to another person, who holds the lambs in such a position as suits the operator, who should now, with a metalic instrument, (I use a sharp shoe knife,) first mark the ear and then take off the tail with a quick blow. Let the lamb go and he will find his mother, and after sucking, both the ewe and the lamb will usually lie down. The mutilated member will soon stop bleeding. Keep them in the yard over night.

In about six or ten days after the operation, bring up the ewes and lambs as before, in the latter part of the afternoon; drive them in a close pen and select out the lambs; put the ram lambs and those that may want tailing together. Have a man to hand out the lambs to an assistant, who should be seated upon a low stool or bench. The assistant should take the lamb by the hind legs, one of them in each hand, and place the lamb on his back, with the rump in the man's lap and his head against his bust, as this will be found the most convenient position for the operator. The ewes and lambs should be kept in the yard over night. In the morning the lambs will go off as smart and lively as if nothing had occurred.

Docking and castrating should not be performed at the same time, as the operations together are too severe for the lambs. I think docking the more severe operation of the two. I prefer holding the lamb in the same position in taking off the tail as in altering.

These operations are usually performed in the morning, and the sheep then turned to pasture. The ewes are hungry and ramble about in search of food, and the poor mutilated lamb has to drag along after its dam, the hot sun and exercise often causing the loss of much blood.

If any sheep-grower will try this plan once, I think he will not again perform these operations in the morning, or both at the same time. O. F. M.

Wheeler, Steuben Co., N. Y.

THE HAWTHORN AS A HEDGE PLANT.

WE make the following extract from a letter recently received from W. M. BEAUCHAMP, of Skaneateles, N. Y.:

"The Hawthorn, I find by experience, will grow in almost any soil. To effect this, requires a difference in planting only. In a clay soil, a more careless mode will do than in a black loam, sandy, or gravelly soil. Wherever the apple will grow, the hawthorn will do well. The wood of the hawthorn is of a stronger texture than any other known—very solid and compact. Devoid of foliage, it is picturesque and pleasing to the eye. It is easily kept in order; and the beauty, when draperied in foliage and flowers, is almost indescribable. The perfume, when in blossom, is exhilerating and delicious. It is hardy; suited to a great variety of soils; very controlable; roots do not spread or throw up suckers; nor is there any danger of having the land filled with plants from dropped seeds, as all creatures seem fond of the fruit—which is of a beautiful scarlet, with a single stone; the meat or pulp mealy and nutritious—excellent food for hogs, poultry, and water-fowl. For a walking-stick, the wood is esteemed superior to any other wood. For heating ovens, by the faggots made from this plant the strongest heat is obtained, and it is preferred by bakers on this account."

TO CATCH OWLS.—Fasten a board just the size of a steel trap upon the end of a long pole. Then bind the trap fast, so that the owl can not light upon it without touching the trench. Set it up so that it will be higher than any object near it. As the owl always alights before it takes its prey, it is sure to light upon it.—OLIVER JESSUP, *Iowa.*

WILL IT PAY?

How often, reader, does this question come to your ears, or revolve itself in your mind, especially now, at this busy season to the agriculturist and fruit-grower, when the demands on the purse-strings are made so often, and so many questions present themselves, which materially affect the profits of a year's labor? And what are your decisions; are they already made? Tell me then. Will it pay to put up that rail fence, which the frosts and storms and winds of the past winter have thrown down, without staking it? Just think what damage the cattle might do in one night in that field of ripening grain or that one of half-grown vegetables. Have you decided to take the risks? don't you do it! now mind this warning; but set to work right faithfully and put in the stakes at every length, with good ties.

Will it pay to wait until the middle of June to plant corn in that field which last year was so wet that you could succeed in growing there only a crop of rotten potatoes? You can remember very well that you did this same thing once before, and the fall frosts nipped the grain before it was glazed. Now this field is one of the best on your farm, but because it requires, to underdrain it thoroughly, only as much labor as you spend every year in putting in, cultivating and harvesting crops that have cost you more than they are worth, you allow it to remain in this unprofitable and worse than useless condition.

Will it pay to let the borers work in your peach and apple orchards, and ruin those fine trees, when a few hours attention to the subject would exterminate the vermin?

Will it pay to remain contented with that old orchard planted thirty years ago with ungrafted trees, while there is an almost unlimited demand for good fruit?

Will it pay to plant those young fruit trees in that grain field seeded to clover and timothy, when you know so well that their future health and fruitfulness depend on their vigorous growth for the first few years after transplanting?

Will it pay to grow strawberries on that patch, now five years old, instead of making a new plantation on fresh ground, where you can depend upon obtaining a good crop?

Will it pay to let that dense clump of raspberry bushes occupy and over-run the whole side of your garden with its thousand suckers, and harboring all sorts of vile weeds, instead of thinning them out, transplanting, if need be, and cultivating them so as to receive some reward and satisfaction from them?

Will it pay to let those wild rose bushes, that antiquated lilac, and those few half broken down, worm-eaten and moss-covered trees, be the only *ornamental* specimens of vegetation of which your residence can boast; can you afford to rear a family without allowing them the means of educating their tastes and sentiments by the refining effects of horticulture? Now, reader, look around and see how the horticultural world has moved since you last moved in it. In your apple orchard there are no Melon apples, nor Northern Spys, nor Baldwins, nor Bakers, nor Rawle's Janet, nor Gravenstein, Jefferis, Porter, Red Astrachan, nor King of Tompkins Co., nor many others which could be enumerated, that are far ahead of anything you have.

Instead of those old Summer Bell and Jargonelle pear trees, you might have Bartletts, or Bloodgoods, or Dearborn's Seedling, Seckel, Flemish Beauty, Louise Bonne de Jersey, Duchesse d'Angouleme, Lawrence, Sheldon, or Easter Beurre.

In the place of those trees of the Horse Plum why can not you have Green Gage, Jefferson, Washington, Reine Claude de Bavay, McLaughlin, Smith's Orleans, Imperial Gage, or Coe's Golden Drop?

And now look at those scrubby, wiry-twigged, sour pie cherries; why not have Yellow Spanish, Belle d'Orleans, Coe's Transparent, May Duke, Governor Wood and Elton? And those peach trees, to be sure, only seedlings! Why, man, where are the Early Yorks, and Crawfords, and Cooledge's Favorites, and Susquehannas?

I do not care to taste those grapes growing at the extreme end of that vine climbing over the top of that tall peach tree, for I am sure it is not Delaware, nor Diana, nor Rebecca, nor any other of the first-rate sorts, or it would have been better cared for; it would have had a good substantial trellis, and been pruned and trained as if its owner prized its noble crop.

But I do not wish to weary you, nor discourage you from doing anything, by proposing too much; but if you will take a glance at the Florist's and the Seedsman's Catalogues, you will see that they are moving along as fast as the Nurserymen, and that you must commence work in earnest if you do not intend to be left behind by your more spirited fellow-laborers.

Perhaps it will appear that the very thing you have decided will pay, if looked at in a different light from that in which you last viewed, will be the thing by which you will sacrifice your best interests.

How often do we hear farmers say, my farm needs underdraining, or I know it will be better for me to raise more fruit and less grain, or my family would be happier if I should bestow more attention on my garden and grounds about my house, but I expect to sell, or will sell if I get a good chance, and do not want to expend anything in such improvements if I should leave it.

Now these very improvements are what will sell your farm, and that, too, at a profit on their cost; just look about you and satisfy yourself on this point, and I am sure you will not deny this conclusion. And if you desire pecuniary prosperity, the enjoyment of home, the satisfaction of having beautified and made fruitful the spot of ground you call your own, and to which the hearts of your family cling, remember that it will pay to do your work well and intelligently, and to keep pace with the improvements that are constantly being made in every department of your business.

THE ONTARIO GRAPE

Eds. Genesee Farmer:—Knowing the interest taken by your journal in Grape culture, I send you for insertion a cut from a photograph of a cluster of the Ontario Grape. This new variety originated in Canada, near Lake Ontario, from which it was named. A native vine, bearing superior fruit, was found in the woods, and was removed to a garden, in close proximity to an Isabella and a Black Hamburg, and fruited. The seeds of this fruit were planted, and the Ontario was one of its results. So much in brief for its history. The vine is a vigorous grower—a prolific bearer—perfectly hardy—never mildews—does not drop its fruit—grows in compact and cylindrical clusters weighing from 1 to 2¼ lbs., with berries from ⅞ to 1¼ inches in diameter; ripened in 1859 and '60 from 15 to 20 days earlier than the Isabella. It has less pulp than the Concord or Isabella. The fruit is a jet black, covered with a rich velvet bloom, and is larger and more showy than the Black Hamburg. Six bunches of this grape were exhibited at the State Fair at Elmira, and the committee noticed it specially, as a very large, early and valuable sort, and awarded the undersigned a diploma.

The *Country Gentleman*, in noticing the grapes on exhibition at this Fair, says:—"The Ontario Grape, exhibited by O. F. Presbrey, of Buffalo, excited much attention. The bunches measured eight inches long, and we were assured that some had weighed 2¼ lbs. The berries were ⅞ of an inch in diameter. They appeared to be well ripened, and Dr. Presbrey assured us that this sort had proved 20 days earlier than the Isabella, and 10 earlier than the Concord. The berries are nearly free from pulp, possessed little or no foxiness, were juicy and quite agreeable, and moderately high flavored."

The *Southern Cultivator* says of the Ontario:—"This grape has now fruited two seasons at 'Vineland,' and proved itself perfectly adapted to our climate. It is a very strong grower, making firm, close-jointed wood, and having a dark green leaf of such thickness as to bid defiance even to the summer sun of 1860. It seems to belong to the Isabella family, though (unlike the Isabella) all the berries upon the bunch ripen at once. Bunches *very large*, shouldered, compact, often weighing from 1 to 1½ lbs.; berries also very large, nearly or quite round, black, with little bloom; pulp tender and dissolving; flavor mild, sweet, luscious, with little or no trace of muskiness. *Superior*

THE ONTARIO GRAPE.

for the table, and the best grape of its class yet fruited here."

Some have confounded this grape with the Union Village, but they differ as widely as do the Isabella and the Alexander. I believe this to be the largest, earliest, and best market fruit offered to the public.

Prospect Hill Vineyard. OTIS F. PRESBREY.

tested the present season. There can be no doubt that it is a most valuable acquisition. The seeds may be sown in a bed where they are to flower, or in a hot bed or cold frame, and afterwards transplanted. The latter method is preferable—not only for Zinnias, but also for most annuals; the transplanting giving them a strong, stocky character, and the flowers are larger and more numerous.

DOUBLE ZINNIA.

SINGLE ZINNIA

DOUBLE AND SINGLE ZINNIAS.

Most of our readers are doubtless familiar with the common Zinnia—a showy-growing, rather coarse annual. The flowers vary considerably in color, but till recently every attempt to produce double flowers has been unsuccessful. Messrs. VILMORIN & Co., of Paris, however, have secured a variety from India, which is double; and they have succeeded, by patient watching for several years, in so far fixing this new condition of Zinnia that it comes as true from the seed as China Asters, the different colors separate, and the double forms still double.

Dr. LINDLEY, the veteran editor of the London *Gardeners' Chronicle*, who has called the attention of the horticultural world to this flower, says:

"A box from Paris reached us the other day filled with what at first sight appeared to be a new race of Double Dahlias. Upon being unpacked, however, the box displayed a collection of Double Zinnias of the most beautiful form and color. Four-and-twenty flower-heads were there, some nearly double, the greater part as completely so as the best Pompone Chrysanthemums; mostly 3 inches in diameter, some 2¼ inches, a few but two inches. Purple, deep rose, light rose, rose striped, red, orange red, orange, buff, and various shades of these colors formed a bouquet of singular beauty, especially when illuminated by a ray of that sunshine which has been so rare this week. The metalic surface of the Zinnia then displayed a brilliancy which none of our autumn flowers can equal."

We annex a cut of the common Zinnia and also of the new double variety. The seeds of the latter are as yet very scarce, but some of our more enterprising seedsmen have imported a few, and the plant will be thoroughly

RHUBARB FOR WINE.

A correspondent of the *Wisconsin Farmer*, says that Mr. CAHOON made 3,080 gallons of wine from two acres of rhubarb, planted last May. His garden is a moist, rich, sandy loam, which is considered the best soil for growing rhubarb. It is thoroughly underdrained, and was spaded 18 inches deep, the plants being set as the spading progressed. May is thought to be the best time for transplanting. They are set one root or bulb in a place, or two if they are small, and four feet apart each way. The after culture consists simply in keeping down the weeds and loosening the soil occasionally.

Mr. C. uses HICKOK's Cider Mill and Press for grinding and pressing the stalks, the operation being very similar to that of making cider. The stalks should be cut into pieces from 2 to 3 inches in length. One man can grind 100 lbs. of stalks in five minutes, and in twenty-five minutes more press out the juice. One hundred pounds of trimmed stalks, *twice* ground and pressed, will make ten gallons of juice.

The wine is made by mixing water and sugar with the juice, in proportions of one gallon of juice, one gallon of water, and seven lbs. of sugar. In one instance Mr. C. cut 48 lbs. of trimmed stalks from one root, which, with the usual addition of sugar and water, made 14 gallons of wine. From one square rod of ground he cut 316 lbs of stalks, and made 75 gallons of wine! The wine is said to "sell readily at one dollar per gallon, which is less than one-half what other kinds of equal quality are held at."

HORTICULTURAL NOTES FOR THE MONTH.

Alterations of all kinds must now be finished, and sowing, pricking, and planting out must be carefully attended to; prefering dry weather for the former, and showery weather for the latter operations. Clear and prepare the ground for receiving new crops, and make it a rule that every part of the garden be occupied in regular rotation. Keep the hoe going—suffering no weeds to grow, and at the same time opening the soil to atmospheric influence.

If the seeds of beets, carrots, etc., have not come up well, sow again and more thickly.

Cabbage and Cauliflower.—Sow a few seeds of each for late planting—the Dutch Drumhead for cabbage, and the Late Walcheren for cauliflower.

Hoe and earth up the early crops. If the soil is poor, enrich it with liquid manure, taking care to give it at the roots only, and in a weak state at first. This applies equally to early and late crops.

Parsneps, &c.—Thin out to eight or ten inches apart—onions, to four or five; keep the soil stirred among them.

Celery.—Sow in a warm spot, in rich, mellow soil; if the weather is cold put a frame or merely a light of glass over the ground.

Strawberries.—Uncover and have thoroughly cleaned before the runners begin to spread. But where a stock of young plants is not wanted it is better not to allow runners to remain. Water if dry, also mulch.

Raspberries.—Uncover buried canes—prune, and tie to stakes or bend over in the form of an arch. This mode of training gives more exposure to light and air, and the young canes do not interfere with the fruiting ones. But those who prefer the old way of tying all up to one stake should, instead of pruning all the canes to one height, prune two of the canes to five feet, and two to four feet, and two to three feet. This will give fruit from top to bottom. After the pruning and tying is done, fork in a top dressing of manure, and mulch the ground again with stable-manure. Raspberries want rich soil and plenty of moisture to grow them to perfection.

Blackberries.—Prune, train and serve as directed for raspberries.

James Craib.

HOW TO INCREASE THE SIZE OF FRUIT.

Prof. Dubreuil, in an article in the *Journal de l' Acad emie d' Horticulture de Gand*, points out some of the principal operations whereby the size of fruits may be increased:

1. Grafting the trees on a weak species of stock—for instance, the pear on the quince.

2. Pruning so as to deprive the tree of a certain portion of its shoots. By this means, the sap which would have been absorbed by the parts cut off, goes to increase the size of the fruit. Summer pruning, which has for its object the removal of a large number of shoots by disbudding and pinching, has the same effect.

3. Let the bearing shoots be as short as possible, and in immediate connection with the main branches. Fruit growing on the stem is always larger than that situated at the extremeties of long, slender branches.

4. Thinning out the fruits when too numerous.

5. Shortening the principal branches, at the winter pruning; and checking, in the summer, the vigorous shoots.

6. Supporting the fruits so that their weight may not become a strain upon the footstalk.

7. Moderating the amount of evaporation from the fruit. Fruits covered by leaves are larger than those on the same tree not shaded. It is necessary, however, in order that shading may not affect the quality of the fruit, to expose it when full grown to the direct action of the sun. To diminished evaporation must be attributed the considerable increase of size which always takes place in fruit introduced into bottles soon after it is set. The mouth of the bottle being closed after the portion of the branch with the young fruit is introduced, the latter is secluded from the dry action of the air, and is constantly surrounded with a moist warm atmosphere, which keeps the epidermis pliable, and stimulates the growth of the tissues.

8. Moistening the fruit with a solution of sulphate of iron (copperas.) One of Prof. D.'s pupils, by moistening an Easter Beurre pear, from the time it was fairly set, once a fortnight, obtained a fruit so large that it could scarcely be recognized.

9. Ringing the shoot or branch immediately below the flowers. This should be done when the flowers are opening; the longer it is delayed after this period, the less is the effect produced. The incision should penetrate to the wood, and the ring of bark removed should have a width equal to half the diameter of the shoot. The width, however, should not exceed one-fifth of an inch, otherwise the wood will not close up.

10. Inserting on vigorous trees fruit buds, with a portion of wood attached. A tree which in consequence of excessive vigor has never produced blossom buds, may by this means be made to produce fruit of large size, from the abundant supply of sap which the inserted blossom buds will receive. But it will be necessary to pinch the shoots of the tree in summer, which would otherwise absorb the larger portion of sap, to the injury of the fruit.

CULTIVATION OF THE CHERRY IN ILLINOIS.

At the last meeting of the Chicago Gardeners' Society, J. Wakeman, of Cook Co., Ill., who appears to have had much experience on the subject, read a paper on the cultivation of the cherry. He is located 15 miles west of Chicago. His soil is common prairie, mostly peaty, spongy, underlaid with a stratum of yellowish clay. He is 85 feet above the lake. He surface drains, by plowing in ridges—the land being too stony to mole drain, and his pocket too light to underdrain.

Nearly all the varieties of the Morello class are perfectly at home with him. They require plenty of manure and little of the knife. The Dukes are mostly hardy in tree but shy bearers. The Hearts and Bigarreaus are somewhat tender, but he is not willing to give them up yet. They have borne five successive crops. He keeps them quite low by cutting back in the spring, in order to get reliable fruit spurs and early fruitfulness; also a large, round, full head, compact as possible with most varieties. If the top be allowed to run up the sap shuns the fruit spurs below, and most of them perish—the branches becoming naked, the growth being all in the top. Some years the fruit rots badly—that on the tops of the highest trees rotting first. Of three branches on different trees which were rung, the fruit all rotted, while on the balance of the trees it was sound. Mr. W. thinks the rot is caused by "inward pressure of sap, aided by external wet."

The two principal requisites for cherry trees are, first, "a deep soil for the extension of their roots beyond the hard frosts and the effect of severe drouth, which puts them in a state of rest during the summer, when they begin to grow in the fall and get winter-killed. Secondly, they must have a chance to keep out of standing water; then if they are kept down low all will be right."

In regard to setting out the trees, Mr. W. says:

"We prefer, if possible, to dig but one hole for each row, and that we do with a plow, trenching the ground so as to lead off water. Experience of years satisfied us (although many are against us) that fruit trees in our light, mucky soil, which imbibes and radiates its heat so easily,

are not very sensitive in regard to a little extra depth so long as their abode admits of no standing water. Five years ago we placed over the roots of a yellow Spanish cherry tree, also an early Richmond, and two Lombard plum trees, three feet of solid clay from the cellar bottom. These trees are underdrained, and are as healthy and productive as any we have. The drouth or winter makes but little impression on them. They bloom some later. We do not recommend setting trees so deep. This was an experiment to try their disposition to suffer in such a capacity. We never stake our trees. We choose stocky trees or cut the top until they can hold themselves up. We shorten or cut in, in the spring, on all young trees and on some old ones if of thrifty growth. We believe all orchards better for being cultivated, but not so deep as to injure the roots, which is too often the case if not surface drained.

"Oats, wheat, or a crop of grass are almost equal to a fire. We believe all orchards should be cultivated, so long as quality or quantity of fruit is desired. Care should be taken that no tree leans to the north-east, for they become sun-struck or injured. In setting out, we always lean our trees to the south-west, as our prevailing winds come from that source. Farmers are too much in the habit of plowing the earth from the row, and leaving the roots nearly or quite bare. The earth should always be highest on the row, so that the ground may be moved and stirred on top without injury to the roots, which if broken, will sprout and prove troublesome.

"There is much land good for all summer crops, but very unsuitable for orchards on account of wet, except drained. We have underdrained some of ours, and find it imperfect in the fall and spring, when it is needed, on account of frost in the ground shutting out water from the drains, and flowing around the trees, freezing in such a manner as to injure and spoil many; some thrown entirely out of the ground, others with the bark loosened part or all around the neck of the tree. Surface draining in this respect is preferable. It also gives the trees an extra depth of soil, which does them as much good as to hill corn or potatoes, thereby affording them a deeper and better extension of roots, enabling them to better withstand the drouth, wind, and extreme frost. A tree thus established in deep soil, will seldom have that disagreeable suckering habit. Its crop is also much improved. Its growth is steady, while trees near the surface are unsteady, by being affected by frost and drouth. In moving some trees of several years standing on wet land, they had very little depth of root. They were evidently between two evils—drowning or freezing to death,—they chose the latter. The orchard of M. Covel, of Cook county, is on good corn soil, rich sand, beautifully protected on all sides by timber, naturally underdrained twelve feet, and not one root graft in it, half top grafts and half natural; bears well, and noble fruit, but the loss of trees during those hard winters of 1856–57, on two acres, was far more than on our seventy, out on the naked prairie, except a little protection on one side. The cause of dead and part dead trees was the thinness of the soil; the roots could endure common winters, but not those. Surface-ridging with a plow, probably would have saved every one of them. We would ridge or surface-drain all thin soils if ever so dry, and all wettish soils, even if underdrained, for orcharding, to guard against ice around the trees."

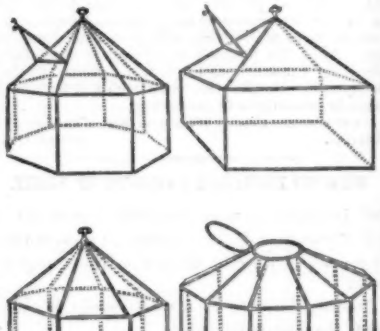
ARTIFICIAL PROPAGATION.

Many methods of propagation by artificial means are now practiced during the various seasons of the year, some of them very difficult in their details, and others comparatively easy. By *artificial* propagation, we mean that which is not done in a *natural* way, as growing plants or trees from seeds would be, but that which is done by grafting, budding, inarching and growing from cuttings, and such kindred operations.

Grafting, as we all know, is practiced in the winter and spring, and is performed principally on fruit trees, although many ornamental trees are propagated in the same way. Roses, at this season of the year, can be grafted with considerable success. Pieces of strong, healthy roots, (of the Manetti stock, if possible,) should be chosen, and grafted by the ordinary method of whip or root grafting,—which will be found described in almost any fruit-book, or in the back numbers of the *Genesee Farmer*,—these should be wound with waxed cloth, planted in a suitable compost, and then started in a hot-bed or house where a steady, gentle bottom heat can be obtained, and when sufficiently rooted should be potted off separately, in small pots at first, until the pots are full of roots, when they should be shifted into larger ones, until the time arrives for planting them out in the open ground, which will be about the end of May or beginning of June.

Of inarching it is not necessary to say much now, as it is an expensive and tardy method of propagation and not generally practiced, although it is almost indispensable for some kinds of plants. Budding, too, has been pretty fully described by others. It is performed during the summer months, as soon as the buds of the new growth have ripened, running through the months of July, August and September, according to the difference in the time of ripening of the various species or varieties to be budded from.

Propagation from cuttings is largely practiced, and nearly all kinds of plants and many trees can be multiplied in this way. Currants, Gooseberries and Quinces among fruits can be grown thus, whilst Roses, Geraniums, Verbenas, Petunias, and other showy denizens of our gardens, are grown in the same manner. The fruits above mentioned are grown from cuttings of the last year's wood, but all the other plants in the list, together with numerous other kinds not named, are grown from the wood of the present season's growth, as soon as it has become hard or ripe enough. The ordinary method pursued is to plant the cuttings in a hot-bed, or in the propagating house, in good bottom heat; this causes them to root very freely. They are previously prepared by being cut down to a bud at the bottom, and the lower leaves taken off, then carefully planted in a suitable compost, which is covered with about one inch of clear sand, and carefully watered to prevent them damping off. But cuttings prepared as above can be grown successfully in the open ground, if they are properly planted and protected from the heat of the sun or from cold rains. This can be done in many ways, but the best and most simple method is by means of hand-glasses, made as indicated by the annexed cuts:



These are generally made of lead or zinc, and may be glazed with common glass, but those done with Hartley's rough or corrugated plate glass are much superior, as the sun will not burn through them. Sometimes the whole top is made to be movable, but these are inconvenient to lift, and those made as here illustrated, with about one pane movable, are much superior. Under these, with ordinary care, cuttings will root quickly, and but a small percentage need be lost. They are also useful for covering young seedlings, and also for the protection of tender plants when first put out or during cold or wet weather. As they are not very expensive, almost any amateur can afford to keep a few of them, and any experienced mechanic can make them from the designs here shown. They may be square, six or eight sided, as fancy may suggest. They are in general use in most English gardens, and would, I think, be particularly useful during our changeable spring months, when protection from the vicissitudes of the climate for tender plants is so much needed.

W. T. Goldsmith.

Ladies' Department.

THOUGHTS FOR THE SEASON.

At the recurrence of the gladsome season of Spring, when the earth, though fitfully, seems arousing from the repose in which the benumbing influence of cold has held her bound, and ridding herself of the chill dress which has been her wintry covering, is preparing little by little to assume her garments of varied hues and vivid coloring, we feel inclined, through the enlivening influence that so generally prevails, to assist in the process. While it is true that nature far surpasses aught that we by skillful handiwork are able to plan or execute, still, what employment more pleasing to those who love her in all her moods, than preparing the soil and committing the seed to the darksome earth, and watching it as it springs up, at first a tiny plant, but putting on strength day by day, through a power peculiar to the vegetable kingdom, of appropriating whatever materials are within its reach, and are adapted to its purpose, to its own development and final perfection? The tilling of the soil, is amongst civilized nations considered with propriety the vocation of the stronger sex; yet I for one, although having no wish to transcend what is evidently woman's true sphere, would say to all of my own sex who can have the control of a small spot of earth, that no investment of a proper amount of time and labor, will yield a better return than gardening. The advantage to health which would result, were some of our American women, on the return of Spring, to exchange their needle-work for some out-door employment for a share of their time, would be almost incalculable; for although their hands would probably be less delicate, the healthful exercise and pure air would impart animation and exuberance of spirits, together with a healthful glow, which would make ample amends.

Were *all* fully to appreciate the benefits to be derived from such an occupation, after having through a long winter been deprived of occasion or opportunity for it,—dealers in embroidery patterns and articles of that class would probably have less, while seedsmen and horticulturists would have more, patronage; and the vernal season would be hailed with delight, as a time of which the poet says truthfully,—

> "The perfume and the bloom that shall decorate the flower,
> Are quickening in the depth of the subterranean bower;
> And the juices meant to feed trees, vegetables, fruits,
> Unerringly proceed to their pre-appointed roots." H. M. D.

Liquid Glue.—The following receipt, the discovery of a French chemist, is selling about the country as a secret, for various prices, from one to five dollars. It is a handy and valuable composition, as it does not gelatinize nor undergo putrefaction and fermentation and become offensive, and is always ready for use:

In a wide-mouthed bottle dissolve eight ounces of best glue in half a pint of water, by setting it in a vessel of water and heating it till dissolved. Then add slowly, constantly stirring, two and a half ounces of strong aquafortis (nitric acid.) Keep it well corked, and it will be ready for use.

Miscellaneous.

LIVE FOR SOMETHING.

Live for something, be not idle—
Look about thee for employ;
Sit not down to useless dreaming—
Labor is the sweetest joy.
Folded hands are ever weary—
Selfish hearts are never gay;
Life for thee has many duties—
Active be, then, while you may.

Scatter blessings in thy pathway—
Gentle words and cheering smiles,
Better are than gold and silver,
With their grief-dispelling wiles.
As the pleasant sunshine falleth
Ever on the grateful earth,
So let sympathy and kindness
Gladden well the darkened hearth.

Hearts there are oppressed and weary;
Drop the tear of sympathy,
Whisper words of hope and comfort,
Give, and thy reward shall be
Joy unto thy soul returning,
From this perfect fountain-head.
Freely, as thou freely givest,
Shall the grateful light be shed.

Fancy Cattle.—Some years ago, a tenant of Mr. Coke (afterward Earl of Leicester) had, in compliance with the wish of his landlord, who was partial to the Devons, set a dairy of cows of that breed of the purest type. Mr. Coke was so proud of them that he frequently took his friends staying at Holkham to view them. On one occasion he went with a nobleman for the purpose. The latter, after seeing and admiring the stock, addressed the owner. "Your cows," said he, "are very beautiful; but why do you keep those ugly polled Suffolk brutes among them?—they quite spoil the dairy." "That's true, my lord," bluntly replied the farmer; "these fine cattle are all very well for show; but you see, after all, we must have *a little milk for the family!*"

A Shrewd Farmer.—The other day, says the *Ayr Advertiser*, in a not unknown part of Carrick, an exhibition of meal took place, and two prizes were promised to the first and second best samples. When the time for exhibiting arrived, there was only one sample of meal forwarded. But the owner of this solitary lot did not relish it being taken away as it came, without gaining any meed of "praise or pudding." So, with canny cautiousness, what does he do but divide his sample of meal into two portions, and getting a neighboring farmer to exhibit the other half, he obtained from the judges the first prize for the one portion, and the second for the other.

At one of the Smithfield Club Shows, the late Lord Erskine, Sir Joseph Banks, and two or three other distinguished persons, were examining a pen of half-bred South Down and Leicester sheep. Lord Erskine seemed lost in admiration at the beauty of the splendid animals. Seating himself gently on the back of one magnificent ram, he exclaimed, "What a beautiful cushion! *I could almost fancy myself on the woolsack again.*"

"Do you think," asked Mrs. Pepper, rather sharply, "that a little temper is a bad thing in a woman?" "Certainly not, ma'am," replied the gallant philosopher, "it is a good thing, and she ought never to lose it."

He who freely praises what he wants to purchase, and he who enumerates the faults of what he means to sell, may set up a partnership with honesty.

Men look at the faults of others with a telescope—at their own with the same instrument reversed, or not at all.

The way for a rich man to be healthy is to live as if he were poor.

NOTES ON THE WEATHER FROM FEB. 14th TO MARCH 16th, 1861.—These Notes extended through January and half of February in the last number of the *Farmer*, though the caption stopped half a month too soon.

The severe weather of the first half of February was followed by much warmer through the month. The average of the last half was 32.1°, or 5° above the average for 24 years. The mean of the whole month of February was 29.6°, or 3.4° above the average for those years.

The last four days had the temperature of Spring, and little sleighing in the last half. The water measured in the month was 2.98 inches, full average. The month gave us much thick cloudy weather, and only one clear day, the 26th, and few clear parts of days. Yet the business operations were easily carried on, and public opinion gave much credit to February. Fresh maple sugar came into market about the 16th, very *sweetly*.

March began warm for 3 or 4 days and then showed its cross looks and fickleness, a love for rapid and strong changes to the middle of its existence. The average heat however of the half is that for 24 years.

Robins appeared about the 1st, and disappeared for several days of cold after the 4th.

First shad caught at Sing Sing on the 3rd, and on the 5th at Stratford, Ct.; in Georgia a month earlier or more.

Splendid aurora borealis on the 9th over a bright land of light, exceedingly fine cotton-like bands, wide or narrow, reaching from the N. horizon to the zenith, and forming a corona a little S. and E. of the zenith. This fine and white aurora extended S. of the zenith after 9 P. M. nearly half way to the southern horizon.

This half month has given us snow, rain, and hail, but no sleighing. We have been little affected by the N. E. snow storms of this half over New England and eastern New York, even far South: little of the snow came west of the Allegany Mountains.

The first half of March, 1856, gave average heat, 11° below that for 24 years; of 1857, 8° below that average; of 1858, 7° below; of 1859, 7° above that mean; and of 1860, 5° above the mean for 24 years. The difference is very considerable; but the effect on spring operations was not very palpable.

THE RURAL ANNUAL AND HORTICULTURAL DIRECTORY for 1861 will be found particularly valuable as the farmer's and gardener's busy season approaches. It contains treatises on the Farmer's Kitchen Garden, Shade and Ornamental Trees, Cultivation of Everlasting Flowers, Ornamental Hedges, Rural Architecture, Ornamental Fountains, Construction of Gates, Cultivation of the Pear, Harrows and Harrowing, &c., &c. We send it, prepaid, by mail on the receipt of the price—25 cents.

The volumes of the *Rural Annual* for the five previous years, 1856-7-8-9 and '60, will be sent, prepaid, by mail, to any address, for $1.00.

ROT AMONG SHEEP.—In some parts of England, a malignant form of "rot" is destroying great numbers of sheep. In one parish, 359 have died or been sold at a reduced price, out of an original stock of 492. The disease is caused by flukes in the loin. No remedy has yet been discovered. Prof. SIMMONS, Veterinary to the Royal Agricultural Society, suggests that "salt may prevent the development of the entoza in the stomachs of sheep, as it is well known they do not become rotten on salt marshes." He also says that "turpentine is of value in leading to the expulsion of flukes." The rot is an old disease, and the general opinion is that it is caused by feeding the sheep on wet pastures during the summer months. It has frequently been stated (without satisfactory proof) that BAKEWELL, the celebrated Leicester sheep breeder, used to turn his fattening sheep on to low, wet pastures, in order to give them the rot and hasten their maturity. The past summer was one of the wettest and coldest ever known in England, and it seems probable that this is the cause of the prevalence of this fatal malady.

CIRCULATION OF THE GENESEE FARMER.—A friend asks "how the hard times affect the circulation of the *Farmer*?" We have no doubt that our circulation would have been much larger had it not been for the political excitement, which has had a tendency to distract the attention of farmers from the quiet pursuits of agriculture and horticulture. Still we are doing well, and have no reason to complain. Our friends who act as agents for the paper have done nobly. We have sent off already over 20,000 copies of the last number, and are daily in receipt of new subscriptions, so that by the end of the year we shall have several thousand more subscribers. Our highest circulation at any time during the last year was 20,297. With the exception of one year, (1851,) this has, we believe, a larger circulation than the *Farmer* ever had since it was published.

POSTAGE ON SEEDS.—Under the new regulation of the postage laws, seeds and grafts can be sent by mail to any distance under 1,500 miles at one cent per ounce; and over that distance two cents. Hitherto they have been charged letter postage, or six cents per ounce. This will prove of great advantage to horticulturists. If any of our friends find it difficult to get good seeds, we shall be happy to procure them the best in market, and at the lowest rates, charging them nothing for our trouble.

APRIL PREMIUMS.—The time for competing for our April Premiums (amounting to $115) expires on the 15th inst. Every one of our agents should send in the names they have by that time, as they may thus secure a Prize. Will not our friends make one more effort to increase our circulation? It is not yet too late; but what is done must be done at once.

IT has been decided to hold the next Fair of the N. Y. State Agricultural Society at Watertown, September 17, 18, 19 and 20. A trial of reapers and mowers, and of other Agricultural machines and implements, is to be held in July, probably at Syracuse or Auburn.

FAIRS FOR 1861.—We shall feel obliged if Secretaries of Agricultural Societies in the United States and Canada will inform us on what days the Annual Fairs will be held.

The Markets.

OFFICE OF THE GENESEE FARMER,
ROCHESTER, N. Y., March 25, 1861.

The first week in this month, flour in New York declined 10@20c per barrel, and wh at 2@3c per bushel. The next week flour again fell 5@10c; and spring wheat 1@2c. White winter wheat maintained its price. Corn advanced 1@2c. During the past week, however, flour *advanced* 10@15c per barrel, and wheat 2@4c, the market closing firm, with an upward tendency. This improvement is due principally to a rapid decline in foreign and domestic freights, and a marked improvement in sterling exchange, and not to any advance in the European markets.

Specie continues to flow into New York from Europe, with no indications of abatement. From Dec. 15 to March 16, $20,000,000 were received in specie from Europe, and $5,000,000 from California. The balance of trade continues greatly in our favor, and our exports are for cash, while our imports are on six or eigh months' credit.

The Bank of England has again raised the rate of discount to 8 per cent.; while in Brussels it is 4; in Berlin, 3; in Hamburg, 2½; and in Frankfort only 1½ per cent. "This high rate of discount in England," says the *London Farmer's Magazine* for March, "*when large foreign* imports are quite a necessity, has had a depressing influence on business, and the probable early opening of the Baltic has kept millers quite on the reserve; but if the weather should be unfavorable, or the threatening aspect of Europe break out into actual hostilities, there must be a rise in prices, the deficiency in last year being probably one-third, or 48,000,000 bushels."

The last *Mark Lane Express*, the highest English authority on the grain market, says:

"By reference to our carefully prepared tabular statement of last week as to the crops of the past year, we find only too sad a confirmation of their deficiency and bad quality, facts which have long been plain enough to those who have attended the markets. But beyond this, the quantity of wheat sown up to the middle of February gives but a gloomy prospect of the next gatherings. If we take the average reports as decisive, that *only two-thirds of the usual breadth had been planted*, and then consider the favorable weather which has since been experienced, we shall perhaps not be much out of the way of a fair calculation if we assume that at the close of the month one-fourth of the land will still be vacant. Again, while the early-sown pieces are said generally to look well, those that were late have many blanks, with a thin and weak appearance, and must so be but little prepared for rough weather. Never, therefore, was a fine dry spring more wanted; while should the summer be cold and late the crops would be in a perilous position."

The last quotations of American wheat in London were: red, $1.80@$1.89; white, $1.83@$1.98 per bushel—(same as last month.) Indian corn, (also same as last month,) white, $1.14@$1.23; yellow, $1.17@$1.26. American flour, $6.72@$7.20; extra, $7.44@$7.93, per barrel—being 48c. per barrel lower on interior, and 24c. lower on superior. The fact that wheat holds its price, while flour is lower, is attributable, we suppose, to the demand for American wheat to grind with damaged English.

The general impression among our millers here is that prices will rule higher. Many are holding on to their stock, while others prefer to sell, trusting to make up for the loss by buying grain at the present reduced rates. It is hazardous to risk an opinion, but the present indications are that we shall see higher prices before next harvest. We observe that some of our contemporaries are of the opinion that if our present political troubles should unfortunately result in actual war, prices would advance. This we deem an error. The depression of the grain market during the past fall and winter was caused principally by a want of *confidence* among capitalists; and we can not see how this is to be restored except by a peaceful solution of our difficulties. So far as material prosperity is concerned, we have everything to lose and nothing to gain by civil war. Our soul sickens at the mere apprehension of such a calamity—the bare idea is too painful to dwell upon.

TORONTO (C. W.) March 21.—Little wheat is offered. Common to medium, $1.08@$1.18; prime, $1.16@$1.18; spring, 88@93c, and "Golden Drop," 94c@$1. Barley—good samples in demand at 46@52c. Oats, 25@27c. Peas firm at 52@55c. Timothy seed, $3@$3.25. Clover $4.50@$4.75. Butter—supply limited, 13@15c; fresh rolls, 16@18c. Hay, $11@$14 per ton.

PHILADELPHIA, March 23.—Wheat firm, with an upward tendency—Red, $1.27@$1.30; White, $1.40@$1.50. Corn advanced 3 cents—new Yellow, 58½@60c. Clover Seed, $4 75@$5 per 64 lbs. Timothy wanted at $3. Flax Seed wanted at $1.50. Rye scarce at 67c. Oats in fair demand at 32c.

NEW YORK, March 23.—Wheat again advanced to-day 1@2c per bushel. Sales of Chicago Spring and Milwaukee Club at $1.26@$1.28; Winter Wheat—Western Red, $1.33; White, $1.45@1.50. White Canada and Southern, $1.50@$1.62. Rye, 68@69c. Barley, 75@80c. Corn, old, 67@69c; new mixed, 64@65c. Oats, 33@35c. Peas, Canadian, 75@76c. White Beans, $1.25@$1.45.

Since our last month's report, there has been considerable fluctuation in the price of fat cattle. Our last quotation was, for ordinary quality, 8½@9c. The first week in March (March 5) the price was lower, 8c to 8¾; and the next week (March 12) it rose to 8¾@9¼c; the next week (March 19) it fell again to 8@9c per lb. for the net weight of Beef, sinking offal.

The total number of Beeves received in New York this week was 4,549. This was 1,345 more than the week previous, and 185 more than the average of last year. The *Tribune* estimates that the reduction in price from the week previous was equal to an average of $6 per head, or over $20,000. Prices are yet, however, a little in advance of what they have been for some months past. The reduction seems to have affected the first class even more than the lower grades. Few sold at over 9¼c. The best drove of bullocks in market this week, says the *Tribune*, was a lot of 48 fine, smooth Ohio Durhams, fed by Mr. BEALE, on the Virginia side of the Ohio river. They were estimated at 9¼ cwts., and held at 9¾c. per lb. A lot of distillery fed cattle from Syracuse, were sold at 9c., on the estimated range of 8 cwts., or $72 each. The *Tribune* says "they had a very different look from some of the Brooklyn-fed scallawags!"

There is an increased demand for cows with young calves. The average price is $40. Calves are somewhat lower. The top price is 7c. per lb. live weight. Working Oxen were lower.

Sheep were higher, and in demand at 6c. per lb. live weight for prime, with good, fine, or middle wool pelts, which are worth $1.12½@$1.75 each. Occasionally there is a sale of extra good sheep at rates equal to 6¼@6½c. per lb., at prices ranging from $6 to $10 per head. The quality of sheep ranges remarkably good, indicating that farmers are paying more attention to winter feeding.

There were 4,589 hogs in market this week. The cold weather has been favorable for the drovers. Corn-fed hogs 5¾@5¾c. per lb. live weight, or 7@7¼c. dressed; distillery hogs, 4½@4¾c., or 6@6¼c. dressed; prime light corn-fed hogs were in demand at 5¾@5¾c. live weight, or 7¼@7½c. dressed.

CHICAGO.—Our latest advices from Chicago are to March 21. Flour and grain was then drooping. The recent advance at the East has undoubtedly caused an advance also there. We quote the report of the market for March 21. Wheat in bags or bulk, sold by sample. Choice Club, 84@87c; fair to good do., 81@83c; choice Spring, 80@81c; fair to good do., 75@78c. Corn in bags or bulk by sample—choice Yellow, 29@30c; do. White, 30@32c; in ear, per 72 lbs., 24@25c. Oats, 15@18c. Rye, 40@48c. Barley, choice, 40@45c; common to fair, 30@33c; inferior, 25@28c.

Cattle, inferior, $2.25@$2.50; common to fair, $2.60@$2.75; good to choice, $3@$3.25; very extra, $3.30@$3.35. Live Hogs, light, $4.60@$4.75; heavy, $4.80@$4.85. Dressed Hogs, light, $5.50@$5.60; heavy, $5.70@$5.75; very choice, $5.87@$6.

ROCHESTER, March 26.—Mediterranean wheat, $1.00@$1.06; white Genesee and Canadian, $1.25@$1.35. Corn, 42@44c. Oats, 25c. Barley, 50@54c. Beans, 75c.@$1.00. Rye, 60@63c. Clover seed, $4.00; timothy, $2.25@$2.75. Hay, per ton, $7.00@$11.00.

BUFFALO, March 23.—Sales of wheat as follows:—Chicago spring 92@93c.; Canada club 94c.; Milwaukee club 95c. per bushel. Dressed hogs 5¾@6c. per lb.

Just as we go to press we have received the *Mark Lane Express* for March 4, which says:

"The rough wet weather of the past week has greatly hindered all kinds of field-work, as well as the completion of wheat-sowing, much of which yet remains to be done—possibly one-fourth. We are sorry, also, to report unfavorably of the young wheat. This has indeed commenced its growth, but with a very feeble and sickly look in many places, and some complete failures, where the seed has rotted, or the young plant died off. Nor is such an unpromising state of things limited to this country. There are serious complaints in France from several localities, and some lands, through total failure, are being resown. Even in Spain accounts are somewhat of the same character; and as old stocks are everywhere well-nigh exhausted, and the last crop throughout Europe was generally deficient and of inferior quality, these symptoms of an unpropitious gathering can not fail eventually to brace up markets. In the country wheat has been more offered for sale, and what was fair maintained its value; but the majority of samples were in worse condition than heretofore, and could only be placed on irregular terms. The pressure through the high rates of discount is still felt, as foreign imports continue free, and sales off the coast have been made on easier terms. There is, however, so little giving way in the Baltic and other places, that we do not apprehend very heavy arrivals for some time, though our own deficiencies are such, that we believe all that can be sent will be wanted before next harvest. France, with its immense population, still shows a gradual increase in the price of wheat, and, should she prove seriously deficient, there may be toward the end of the season a strong competition for supplies between our neighbor and ourselves."

PRESERVING THE GENESEE FARMER.—Mr. RUFUS CONANT, of Massachusetts, writes us that he preserves his *Genesee Farmers'*, by fastening them together with shoe-strings, with tags on the ends. He says: "As I get the numbers I put them on, and make the holes uniformly with a pen-knife, and at the end of the year, by squaring the edges, I have a good-looking book, besides keeping the numbers together during the year." The plan is a good one, and will be easily understood by the annexed engraving. One of the principal advantages of a monthly agricultural paper is, that it is in a form convenient for preserving for future reference.

ARTIFICIAL FOODS.—An esteemed correspondent asks our opinion in regard to the value of Thorley's Food for Cattle, advertised in the *Farmer*, and in other agricultural papers. We think the same amount of *nutriment* can be obtained by the use of oilcake, peas, and other ordinary food, for *one-third the cost*. Thorley's food contains more or less of such substances as are usually given as "Condition Powders." We do not think it contains anything injurious; in some instances even it may have a good effect—giving a horse, for instance, a good coat. But to purchase such food for ordinary farm stock is absurd; and in any case, it is paying a pretty high price for salt petre, liquorice, sulphur, ginger, antimony, and other ingredients given as condition powders.

GEO. A. PECK, of Delaware Co., Ohio, in a letter dated March 3rd, says:—"The weather in this part of the country has been very warm for the last two weeks. The frost is entirely out of the ground. Many farmers are breaking up sod ground. Feed for stock is uncommonly plenty. I understand that in some of the adjoining counties there are thousands of loads of fodder that will have to be burned, to make room for the next crop."

LABELS FOR TREES.—J. B. SUMNER, of Boston, Mass., has sent us a specimen of his labels for fruit trees. They consist of a strip of brass, about four inches long, with the name of any variety that is desired printed on them. They are easily attached to the tree and are the best and simplest metalic labels we have seen. They are sold at from one to two for one cent.

THE DUKE OF NEWCASTLE, who attended the Prince of Wales on his American tour last summer, has made the Hon. JOHN WENTWORTH, of Chicago, Ill., a present of two valuable South Down rams. A letter from Mr. W. informs us of their safe arrival.

Inquiries and Answers.

BONES.—(S. K. S.) You will find it a difficult matter to convert bones into a good superphosphate, unless they are *finely ground*. The bone dust should be wet with one-third its weight of water, and well mixed; then add one-half its weight of common sulphuric acid (say sp. gr. 1.7). The acid, *by the quantity*, will cost 2 cents per lb. in New York.

POTATOE DISEASE.—(D. P. A.) Prof. BOLLMAN'S remedy is simply *drying the potatoes*. Some seven years ago he received for trial some potatoes from Siberia. They were put back of the stove used for heating the Professor's study, and forgotten, till they were shriveled up—so dry, in fact, that it was feared they would not grow. They did grow, however, and were free from disease, while all the potatoes in the neighborhood and throughout the country (Russia) were seriously affected. This accidental discovery induced the Professor ever afterwards to dry his seed potatoes. Varieties which were usually affected were by this simple process found to be free from the disease. In 1857, upwards of three acres were planted with kiln-dried potatoes, and "although the product exceeded 1,600 bushels, not a diseased potato was discovered." In 1858, Prof. B. erected a drying-house, with heated floors, on his estate; and within the last two years similar erections have taken place on the different estates of the principal landed proprietors.

CULTURE OF TOBACCO.—(A SUBSCRIBER.) We have not space this month to answer your inquiries fully, but will do so next month. In the mean time, you can sow the tobacco seed, and get the plants ready for setting out in the field the latter part of May. To do this, select a warm, rich, and well-prepared piece of ground, that has a southern aspect and is sheltered from the cold winds, and as soon as the ground can be worked properly in the spring, prepare the bed, rake it fine, roll and sow the seed at the rate of say an ounce to a square rod. If the bed can be surrounded with a frame and covered with glass, or cotton sheeting, so much the better. In this section, this is generally necessary. When the plants are up, which will be in two or three weeks, the glass can be removed on warm days, but on cold days and nights should be kept on, attending, of course, to the ventilation.

RAISING CABBAGE SEED.—(D. CARD.) Select the best heads; strip them off, *but do not cut off any of the stalk*. Set them out in good ground, where there is no danger of the pollen reaching them of other plants of the same species.

DO HORSES DIE OF BOTS?—In the *Genesee Farmer* for March, "T. L.," of Greenup county, Ky., complains that he has lost a valuable mare by Bots. Now it occurs to me, though I have not the work at hand, that YOUATT says that Bots never injure a horse, and if they did, they are so situated in the stomach that no medicine which it would be safe to give would reach them; therefore, doctoring for Bots is folly. It also occurs to me that in a celebrated horse law-suit in Baltimore, a few years ago, the veterinary surgeons collected by the case all sustained YOUATT as good authority for diseases of horses and their treatment. What are the facts? Do Bots injure horses or not?—L. E. B. WINSLOW, *Canton, N. Y.*

Is the effective force of the hydraulic ram more than an overshot wheel and pump to force water 50 feet into a reservoir? For instance, I have a small stream where can be made a dam 12 feet high. The water is constant, but not abundant. Would one or two rams, forcing water through a main channel or pipe, accomplish all that could be with a water-wheel and force-pump?—S. K. SMITH.

WILL BUCKWHEAT INJURE SOWS IN PIG?—A. GREEN says feed buckwheat to hogs. I have done so, and two of my sows have lost their pigs. They had gone about half their time. Is it a little buckwheat bran that I have fed them, or not?—SILAS GREEN, *Conneaut, Ohio.*

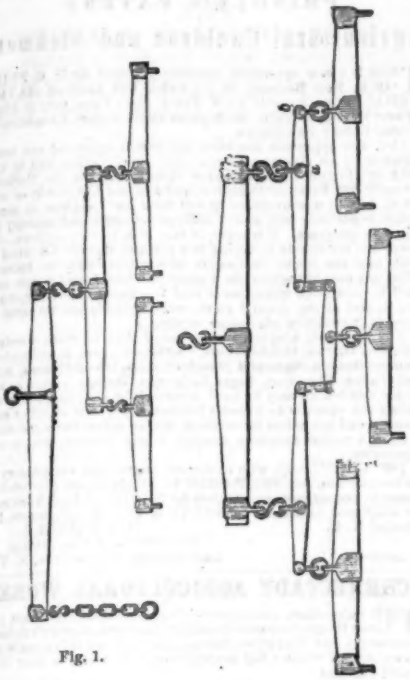


Fig. 1.

Fig. 2.

WHIFFLETREES.—(M. R.) The lightest and strongest Whiffletrees are made with a truss, as shown in the annexed engraving. (Fig. 3.) The additional strength which the trussing gives admits of the other parts being much lighter, while breaking under ordinary circumstances is almost impossible. The truss is a light iron rod. This is known in England as "Harding's principle," and is patented there, but not in this country.

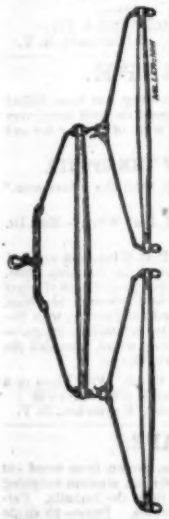


Fig. 3.

The above engraving (fig. 1.) shows the principle on which three-horse whiffletrees are ordinary constructed. The two horses are attached to the short end of the first draught-bar, and one at the longer end, which should be twice the length of the other, so that the labor will be equally divided among the three. Fig. 2 shows a set of three-horse whiffletrees of a more complicated construction, but which work more steadily.

A SOW EATING HER YOUNG PIGS.—(J. B.) Muzzle the sow, by fastening a leather slip over her nose, and secured by passing a strap behind her ears and under her throat. The muzzle should be loose enough to allow her to sip her food, but tight enough to prevent her from biting her little ones.

PERIOD OF GESTATION IN COWS.—(B. T.) The usual period is from forty to forty-one weeks. It varies, however, more than is generally supposed. M. TEMIN reports the result of observations upon 160 cows: 14 calved from 241st to 266th day; 3 on the 270th; 50 on the 280th; 68 on from the 280th to 290th; 20 on the 300th; and 5 on the 308th.

GRASSES FOR SHADY PLACES.—(A C.) No kind of grass does well in the shade; the one which does better than any other among trees is the Wood Meadow grass (*Poa sylvatica.*) You would probably have to import the seed, as, we believe, it has never been cultivated in this country—though it undoubtedly deserves attention.

SEVENTEEN YEAR LOCUST.—(WM. TURNER.) Its last appearance in this State was in 1843, consequently we may expect it again this season. You will find a cut and description of it in the *Rural Annual* for 1860.

SPURRY AND WHITE LUPINE.—(R. P. C.) J. M. THORBURN & Co., of New York, may have the seed of these plants. We believe the Patent Office imported some a year or two since for gratuitous distribution.

KITCHEN GARDENING.—(L. M.) There is an article on this subject in the *Rural Annual and Horticultural Directory* for 1861. We will send you the work by mail, on the receipt of 25 cents.

BOUND VOLUMES OF THE GENESEE FARMER.—(M. S.) The price of the bound volumes of the *Farmer* is $1.00. The five last volumes, 1856-7-8-9 and '60, will be sent by express for $4.00.

BONES.—(B. D., *Iowa.*) We know of no satisfactory method of converting bones into good manure except by grinding them.

TOBACCO.—As many of our farmers in this part of the country raise their own tobacco, we should be glad if some of your correspondents would give us through the *Farmer* the best way to cure the leaves and make them up into plugs, so that they may be kept for use.—O. BUCKNER, *C. W.*

METAL FOR ROOFS OF BARNS.—I wish to inquire of any who have used metal for roofs, what effect the heat generated by it has on the hay, differing from shingle roofs?—W., *Clark Co., Va.*

WATER CISTERNS.—I would like to know what kind of cisterns are best, stone, cement, timber, or brick, and how can they be built in the most economical manner.—N. S., *Hopewell, N. Y.*

I have about half an acre of Canada thistles on my farm. Will some of the readers of the *Farmer* tell me the best method of destroying them?—JACOB DILLMAN, *Ohio.*

Can any of the readers of the *Farmer* inform me the best method of joining the edges of India rubber, so as to form a seam as strong as other parts?—G. L., *Cairntown, C. W.*

Which are the most nutritious, carrots or parsneps, especially for horses?—R. MCCREDIE.

For horses, carrots are preferable.

AIR-PRESSURE CHURN.—If any of the readers of the *Genesee Farmer* have used this churn, I should be glad to hear whether it gives good satisfaction.—S. B., *Ind.*

SPAVIN.—I wish to ask through your paper for information on the cause, nature, and best remedy for the three kinds of spavins in horses.—WM. RENO.

ADVERTISEMENTS.

A FEW short advertisements of interest to farmers—and only such—will be inserted in the *Genesee Farmer* for twenty-five cents a line, or $2.50 per square, each insertion, payable in advance. To secure insertion, they should be sent in by the 15th of the previous month. The *Farmer* has large lists of subscribers in *every State and Territory, and in all the British Provinces.* (It has nearly 5000 subscribers in Canada West alone.) There is no better or cheaper medium for advertising everything of general interest to rural residents in all parts of the United States and Canada.

We will also insert a few "Special Notices," if appropriate to our columns, at fifty cents a line.

P. SUTTON, Ransom, Luzerne Co., Pa., pays liberal seed premiums for subscribers to papers. Circulars free. 1t*

Cooperstown SEMINARY, COOPERSTOWN, N. Y. | $40 PAYS BOARD and Common English, 14 weeks. Term opens April 12th. For Catalogues address 1t* R. C. FLACK, A. M.

GOOSEBERRIES AND BLACKBERRIES.

THE Subscriber has DORCHESTER BLACKBERRIES and HOUGHTON GOOSEBERRIES, for sale at 50 cts. per dozen.
April—1t* HENRY G. WESTON, Woburn, N. Y.

LAWTON BLACKBERRY.

A FINE lot of Lawton or New Rochelle Blackberry Plants for sale cheap. Address C. W. SEELYE,
ROCHESTER CENTRAL NURSERIES, Rochester, N. Y.

FOR SALE.

A FEW PURE BRED Devon Cows, Bulls, Heifers, &c., of unquestionable pedigree. GEO. L. RYKERT,
April—1t St. Catherines, Canada West.

Cherry and White Grape Currants.

A SMALL Stock of fine plants of White Grape and Cherry Currants for sale. Address C. W. SEELYE,
Rochester Central Nurseries, Rochester, N. Y.

BOOK AGENTS WANTED.

EXTRA INDUCEMENTS OFFERED. Address, GEO. F. TUTTLE,
Feb.—3t. 147 Fulton St., New York.

ALL kinds of Fruit and Ornamental Trees and Shrubs, EVERGREENS, Roses, &c., &c., ready for Spring Planting at the
Rochester Central Nurseries,
C. W. SEELYE, Rochester, N. Y.

HONOLULU SQUASH.

25 SEEDS of this celebrated Squash sent by mail on receipt of 15 cents in stamps. JNO. S. GOULD,
April—1t. Macedon, Wayne Co., N. Y.

STRAWBERRIES—STRAWBERRIES.

A COLLECTION of the best varieties; strong, hardy plants for sale by the hundred or thousand. Send for a Catalogue and address C. W. SEELYE,
Rochester Central Nurseries, Rochester, N. Y.

AMERICAN GUANO—From Jarvis & Baker's Islands, in the South Pacific Ocean, imported by the American Guano Company. C. S. MARSHALL, President; H. MATHER, Secretary.
J. K. CHAPPELL, Agent,
June—tf 64 Exchange Street, Rochester, N.Y.

CHOICE SEED POTATOES.

I CAN supply Peach Blow, Prince Albert, and Davis' Seedling Potatoes, at $2 per barrel, or $1 per bushel, including sack or box, delivered at the Express office or Railroad in Utica.
T. B. MINER,
April—1t Clinton, Oneida Co., N. Y.

Bedding Plants—Green-House Plants.

ROCHESTER CENTRAL NURSERIES.

WE would call the attention of the public to our very superior collections of Bedding Plants, Green-House Plants, &c., consisting of the best and latest varieties of Verbenas, Fuchsias, Geraniums, Petunias, Heliotropes, Lantanas, Chrysanthemums, &c. Plants carefully packed and sent to any destination by express or R. R.

☞ New Catalogue just issued, for which address
C. W. SEELYE, *Rochester Central Nurseries*,
Rochester, N. Y

PRINDLE'S PATENT
Agricultural Cauldron and Steamer.

THIS is a new apparatus, recently patented by D. R. PRINDLE, East Bethany, N. Y., which was awarded SILVER MEDALS at the last two NEW YORK State Fairs, held at Albany and Elmira, and also the highest Discretionary Premiums at several County Exhibitions.

This new apparatus has been universally approved and commended by all classes, *wherever seen in operation*, and is THE ONLY ONE IN THE UNITED STATES which combines the Portable Furnace, the Farmers' Cauldron, and a Steam Generator, or still, retort, &c. It is convertible at will from the Cauldron to steam boiler, is perfectly safe, and of sufficient strength and capacity for domestic purposes. It is made of cast iron, in two sections—the lower one the cauldron, setting in a portable furnace for wood or coal, and the upper, the steam attachment, with its fixtures. With this new apparatus, the Farmer or Stock-feeder is now enabled to cook large quantities of food at a time for Hogs or OTHER STOCK, and at any desired point, carrying the steam in PIPES or LOGS, *thus avoiding all danger of fire.*

It is peculiarly adapted for the use of Pork or Stock Feeders, Tanners, Dairies, Hotel-keepers, Carriage-makers, Boat-builders, Lumber-dealers, Stave and Shingle-makers, Green-Houses, Soap and Tallow Chandlers, Sugar Refineries, Hop-growers, &c., &c. Steam and hot air may be used separately or conjointly, thus enabling the operator to kiln-dry lumber, hops, fruit or other substances, and use steam for cooking, &c., or not at the same time, it being a perfect cauldron, steamer, heater, furnace, &c., in one apparatus.

☞ CIRCULARS, with numerous engravings explanatory of its uses, details, &c., SENT FREE to all applicants who enclose stamp to prepay postage. Orders for the State of New York may be addressed to Messrs. BENNETT & CO., Manufacturers, Rochester, N. Y.
D. R. PRINDLE,
PATENTEE AND PROPRIETOR,
April—1t East Bethany, Genesee Co., N. Y.

SCHENECTADY AGRICULTURAL WORKS.

THE Subscribers manufacture Improved Endless Chain and Lever HORSE POWERS, COMBINED THRESHERS AND CLEANERS, THRESHERS and VIBRATING SEPARATORS, CLOVER HULLERS, WOOD SAWS, &c., of which a full description will be found in their Illustrated Circular.

The annexed letter relates to one of our Two-Horse Machines (Thresher and Cleaner):

OSCEOLA, Ill. Feb. 19th, 1861.

G. WESTINGHOUSE & Co.:—I should have written you before now, giving an account of the success of your machine with us. We threshed last summer and fall about 10,000 bushels of Wheat at four cents, and 4,000 bushels of Oats at two cents. The greatest number of bushels we threshed in one day was 260, commencing at 9 A. M., but as a general thing our day's work averaged from 150 to 200 bushels, according to the yield per acre. We threshed 530 bushels of oats in one day, and where oats were good averaged about 500 bushels per day. S. M. HILL.

☞ Send for a circular and price list. Address
April.—1t G. WESTINGHOUSE & CO.,
Schenectady, N. Y.

OPORTO GRAPE.

THE Oporto Grape is an American Seedling, has been fruited over ten years, is perfectly hardy, ripens its fruit early, very productive, strong grower, and makes a wine of more color and body than any Grape yet tested.

WHAT THE PUBLIC SAY OF THE OPORTO.

"Must as black as ink, and THICKER than any I have seen."—N. LONGWORTH, *Cincinnati, O.*

"It is esteemed by Physicians a good Port Wine."—Rev. Dr. LOUNSBURY.

"The Oporto has the boquet of good Port Wine, and none of that 'headiness' which characterizes most of the domestic wines. This wine, without doubt, has just the proper proportions of sugar and tartaric acid to make it a healthful and pleasant beverage, and especially commends itself to the Medical Faculty, who frequently need a gentle stimulant free from deleterious drugs."—SAXON B. GAVIT, Chairman of Committee which awarded the First Premium to the wine from the Oporto Grape.

☞ Strong, open-air vines from $1 to $3. For Vines or a Descriptive Circular address E. WARE SYLVESTER,
April—1t. Lyons, Wayne Co., N. Y.

ONTARIO GRAPE.

FOR SALE—Strong, well-rooted vines, grown from wood cut from the original vine in Canada. Grows clusters weighing from 1 to 2½ lbs. Twenty days earlier than the Isabella. Parties ordering can rely upon getting true vines. Price—$3 single vine; $30 per dozen. OTIS F. PRESBREY,
Prospect Hill Vineyard.
April—2t Buffalo, N. Y.

MISSOURI FARMS!

The

HANNIBAL & ST. JOSEPH R. R. CO.

OFFERS FOR SALE OVER 500,000 ACRES,

IN NORTHERN MISSOURI,

Of the Finest Prairie and Timber Farming Lands in the West.

In Lots to suit Purchasers, at Low Prices, on the Long Credit of Ten Years at Five per cent Interest.

Pamphlets, Circulars & Maps.

giving full and reliable information on the **Climate** and its healthfulness, **Soil, Water, Timber, Coal, Rock, Productions, Markets, &c.,** can be had gratuitously on application by letter or otherwise to

GEO. S. HARRIS, Eastern Land Agent,
40 STATE ST., BOSTON, MASS., or to
JOSIAH HUNT, Land Commissioner,
OF THE H. & ST. J. R. R., HANNIBAL, MO.

☞ The undersigned continues to act as Agent of the

NEW ENGLAND COLONY TO MISSOURI,

and will furnish all desired information of this promising enterprise. Address 1t GEO. S. HARRIS, Boston, Mass.

FLOWER SEEDS BY MAIL.

FOR the accommodation of those who love the cultivation of Flowers, but who reside at a distance from where they can be procured, we have selected from our large assortment of Flower Seeds the most showy varieties and those of easy culture, and put them up in assortments, which will be sent, post paid, to any address in the Union at the following prices:

Assortment No. 1—Contains twenty choice varieties of Annuals,..... $1 00

Assortment No. 2—Contains twenty choice varieties of Biennials and Perennials,..... 1 00

Assortment No. 3—Contains ten extra varieties of Annuals and Perennials, embracing many of the new and choicest in cultivation,..... 1 00

Assortment No. 4—Contains five very choice varieties Selected from Prize Flowers of English Pansies, German, Carnation and Picotee Pinks, Verbenas, Truffaut's French Asters, Double Hollyhocks,..... 1 00

Any one remitting $3 will receive the four assortments postage free.

☞ The Ninth Edition of our Descriptive Catalogue of Vegetable and Flower Seeds, the most complete work of the kind ever published, is now ready and will be mailed to all applicants enclosing a three-cent stamp. B. K. BLISS,
April—1t. Springfield, Mass.

50,000 Wilson's Albany Seedling

STRAWBERRY VINES—50 cents per 100; $4 per 1,000; $7 per 2,000. HOOKER'S SEEDLING Strawberry Vines—same price.

2,000 Plum Trees, leading sorts, two years old, very fine, 4 to 7 feet high—$28 per 100, carefully packed.

White Grape Currant, one year old from cuttings, and strong—$6 per 100.

Fertille de Polinue Currant, one year old, $6 per 100.

Privet Cuttings, $1 per 100.

1t. JOSEPH CALDWELL, Nurseryman, Troy, N. Y.

AMALGAM BELLS,

At Prices Within the Reach of every Church, School-house, Factory, Cemetery or Farm in the Land.

THEIR use all over the United States for the past two years has proven them to combine more valuable qualities than any other, among which tone, strength, durability, vibrations and sonorous qualities are unequalled by any other manufacturer. Sizes, 50 to 5,000 lbs., costing less than half other metal, or 12½ cents per lb, at which price we warrant them 12 months. Send for circular for sizes, guarantee, &c.

M. C. CHADWICK & CO.,
April—3t. 190 William St., New York.

CHOICE VEGETABLE SEEDS BY MAIL.

THE following varieties will be mailed to any address in the Union on receipt of the price affixed, which may be remitted in postage stamps or current bills:

50 seeds	Hubbard Squash,.....	15	cents.
20 "	Honolulu "	15	"
50 "	Boston Marrow Squash, *pure*,.....	15	"
50 "	Japan Apple Pie Melon,.....	15	"
100 "	Perfected Tomato (*Pomo d'Oro Lesteriano*),.....	15	"
1 pkt.	Early Paris Cauliflower, the best in cultivation,.....	25	"
1 "	Marblehead Mammoth Cabbage,.....	25	"
½ ounce	Stone Mason Cabbage,.....	15	"
½ "	Premium Flat Dutch Cabbage,.....	15	"
1 pkt.	Lee's New Sprouting Broccoli, new English variety,.....	50	"
1 ounce	Yellow Danvers Onion, the best variety,	25	"

The entire collection will be sent by mail, prepaid, for $2 00. The above may be relied upon as the very best of their kind.
Address April—2t B. K. BLISS, Springfield, Mass.

EXTRACT OF TOBACCO,

For Dipping Sheep and Lambs, and for Destroying all kinds of Vermin on other animals.

THE Manufacturers of this new and valuable preparation beg leave to call the attention of Farmers and Graziers to this effectual remedy for destroying Ticks, Lice, and all other insects injurious to animals and vegetation, and preventing the alarming attacks of the Fly and Scab on Sheep.

Its use not only removes the Vermin on animals, but cleanses and purifies the skin, thereby materially benefiting their general health, and greatly improving wool, both in quality and quantity.

This article completely supercedes that *laborious* and *disagreeable* work of preparation in your own buildings for Sheep-washing, as it is ready at all times, in any climate, and for all descriptions of Sheep, even for Ewes in Lamb, and can be furnished at a much reduced cost. FISHER & CO., Sole Agents,
April—2t. 23 Central Wharf, Boston.

LANDS FOR SALE.—200 acres of very choice farming and grazing land. Over 100 cleared, and under high state of improvement, and good buildings erected. Abundantly watered with the purest spring water. Near Hawksville, Township of Wellesley, County Waterloo, C. W. Beautifully situated in a fertile region, on the Conestoga River. For sale cheap and on easy terms. Inquire, if by letter prepaid, of M. P. EMPEY,
April—1t* Hawksville, C. W.

EUREKA! EUREKA!!

A TOWNSHIP ATLAS of the Western Continent, containing 56 Maps, beautifully colored; published the present year, 1861, and bound in cloth, will be sent free to any address for $1. An Atlas of the World, $2. S. N. GASTON,
April—2t* 119 Nassau street, New York.

GREAT AUSTIN SHAKER SEEDLING.

THE subscriber has a stock of the above new Strawberry which he will send (prepaid) by mail, as follows. One plant for 50 cents, two for $1, and twelve for $3 JNO. S. GOULD,
April—1t. Macedon, Wayne Co., N. Y.

Raspberries, &c., Cheap.

5,000 BRINKLE'S Orange and 6,000 Franconia Raspberry Plants, also, 2,000 very fine two years old Isabella Grape vines at the lowest rates. Address JNO. S. GOULD,
April—1t. Macedon, Wayne Co., N. Y.

Wilson's Strawberry Plants.

FOR SALE—100,000 Wilson's Albany Strawberry Plants, at $3.50 per thousand. OTIS F. PRESBREY,
April—2t. Prospect Hill Vineyard, Buffalo, N. Y.

VERBENAS AND FUCHSIAS BY MAIL.—The choicest kinds packed to reach any part of the United States in good order. Price very low. ☞ Send for a catalogue.
1t* GEO. NICHOL, Lock Box 205, Providence, R. I.

CRANBERRY VINES.—Lowland Belle vines from 1 to 4 feet long. Set from May to July. $1 per 100; $5 per 1,000, sent by express. The fruit has taken the first premium at each State Fair exhibited. NOBLE HILL, Canton, Steuben Co., N. Y

$1 WILL OBTAIN the following reliable recipes for making Non-explosive Burning Fluid, Artificial Honey, and the Hunter's Secret, for attracting different kinds of animals together into traps. Address Box 148, Waterbury, Conn. 1t*

FOR AN ESSAY ON HORSE-TAMING—Send a three-cent stamp to Box 100, Cheshire P. O., New Haven Co., Ct. 2t*

PRIZE MEDAL OHIO REAPER AND MOWER.

E. BALL'S PATENT.

MANUFACTURED BY

ROSS, DODGE & POMROY,

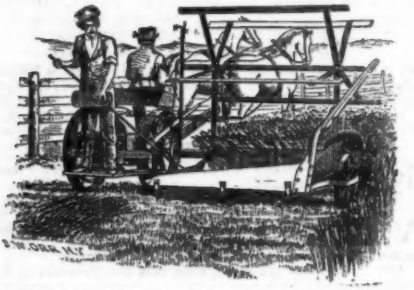
AUBURN, N. Y.

1. The carriage of the machine is mounted on two driving wheels. In connection with each of these is a spur wheel and pinion, making the machine stronger and more durable than any single-geared machine can be.

2. The relation between these two driving wheels is such that they operate jointly or separately, as circumstances may require. The result of this is, that when the machine is moving on a curve, either to the right or left, the usual speed of the knife is retained and clogging avoided, and in turning and backing the machine throws itself out of gear.

3 The weight of the carriage and gearing attached to it, as well as that of both raker and driver, is thrown directly upon the two driving wheels, by which the following advantages are gained: 1st. The wheels are prevented from slipping on the ground, and thus prevent the machine clogging. 2d. A powerful and efficient stroke to the knife is produced, enabling the machine to cut any kind of grass or grain without difficulty. 3d. No weight being thrown on either the platform or cutter bar but that of its own, side draft is obviated, and the machine made to run lighter.

4. The machine, both as a Reaper and Mower, has a flexible cutter-bar, which invariably adapts itself to the uneven surface of the ground. This is the first successful machine that ever combined this principle, and it is now an almost universally admitted fact among intelligent farmers and mechanics that it is impossible to construct a good Mowing machine without having a flexible cutter-bar and two driving wheels.



The advantages of this machine as a Reaper are very obvious:

1. The grain is delivered at the side of the platform, entirely out of the way of the next round.

2. It cuts a swath six feet wide, and will cut one acre per hour with one span of horses without injuring them.

3. It can be changed from a Mower to a Reaper in fifteen minutes, and vice versa.

There are other general points of excellence, the simple mention of which will be at once understood by the practical farmer.

1. The mechanical execution of the work, as well as the character of the materials used in their construction, is superior to that of most machines of the kind.

2. The driving wheels are three feet high, thus improving the draft.

3. It has an adjustable tongue by which the side draft can positively be controlled under all circumstances. Some machines have little or no side draft while mowing, but have a great deal while reaping. Nothing but an adjustable tongue can avoid this difficulty.

4 The height of the stubble can be changed from one to five inches in an instant, without stopping the machine. This is an important improvement from the fact that it enables the machine to cut lodged grass as close to the ground as that which is standing; or to cut a high stubble where the ground is rough, boggy, or stony; or the points of the guards can be turned above the grass whilst the machine may be passing over it after it is cut.

5. In case the "Lifting Principle" should be preferred to the one just described, the cutter-bar can be confined to cut at any given height, and then by the use of the lever, the driver, while on his seat, can raise the cutter-bar parallel with the ground from three to twelve inches. This arrangement facilitates turning and backing, or passing over large stones or stumps.

6. In moving the machine over cut grass, or from place to place, the cutter-bar can, in an instant, be raised, folded up and supported against the side of the machine.

7. The journals run in iron boxes babbeted, excepting the pitman box, which is composition.

8. The guards are polished wrought-iron, plated with cast steel. The Mower cuts four feet six inches wide.

MANUFACTURED AT THE AUBURN STATE PRISON.

April—4t. **ROSS, DODGE & POMROY.**

GUANO.

We would call the attention of Guano Dealers, Planters, and Farmers, to the article which we have on hand and for sale at

40 PER CENT LESS THAN PERUVIAN GUANO,

which we claim to be superior to any Guano or fertilizer ever imported or manufactured in this country.

THIS GUANO IS IMPORTED BY

WM. H. WEBB,

OF NEW YORK, FROM

Baker's and Jarvis' Islands, in the South Pacific Ocean.

Sold genuine and pure as imported, by the Cargo, or at retail by

JOHN B. SARDY, GENERAL AGENT,

NO. 58 SOUTH STREET, CORNER WALL STREET.

NEW YORK.

It has been satisfactorily tested by many of our prominent Farmers, and analyzed by the most eminent and popular Agricultural Chemists, including Professor LIEBIG, of Germany, extracts of whose report and analysis are to be seen below, and found to contain (as will be seen by our circular) over 50 per cent. of

PHOSPHATE OF LIME,

and other animal organic matter, yielding ammonia sufficient to produce immediate abundant crops, besides substantially enriching the soil. It can be freely used without danger of burning the seed or plant by coming in contact with it, as is the case with some other fertilizers; retaining a great degree of moisture, it causes the plant to grow in a healthy condition, and, as experience has proved,

FREE OF INSECTS.

For orders in any quantity (which will be promptly attended to), or pamplets containing full particulars of analyses and tests of Farmers, apply as above.

Prof. LIEBIG says, under date—July, 1860:

"The Baker's Island Guano contains more *Phosphoric Acid* than any other known fertilizer. * * * I regard the discovery of these guano deposits as a most fortunate event for agriculture. * * * The Phosphate of Lime in the Baker's Island Guano is far more easily dissolved than that of bones. * * * *Agriculturists would be benefitted as much by using 70 lbs. of Baker's Island Guano as by 100 lbs of Bone Dust.* * * * The Jarvis Island Guano would seem to be an excellent means of restoring cotton and sugar plantations, whose soil has been worn out by long continued cultivation. *I think it is preferable to Peruvian Guano*, which being rich in ammonia, tends rather to great development of leaves and stems."

"Women of New York."

MRS. HANKINS' Curious new Book of Female Characters in the City, is very interesting and strictly moral. Fancy binding. 350 pages. 50 Engravings. 36 Portraits. Mailed free for **$1.** AGENTS Wanted—Ladies and Teachers. Description of Books and Particulars of Agency mailed gratis. Address

March.—6t. HANKINS & CO., New York.

HOWARD'S NEW MOWER.

I WISH thus early to call the attention of those intending to buy a MOWER or a MOWER AND REAPER for the coming Harvest, to my NEW MACHINE, and the reduction of prices.

I shall have for the coming harvest four different sizes of Machines, and sell them as follows:

My One-Horse Mower, capable of cutting from five to six acres per day..... $70 00
No. 2.—Two-Horse Mower, will cut from eight to ten acres per day..... $85 00
No. 1.—Two Horse Mower, will cut from twelve to fifteen acres per day..... $100 00
Combined Mower and Reaper, twelve to fifteen acres per day..... $130 00

They are so arranged that

The Entire Machine Runs on Wheels or Rollers,

and with a Patent Adjustable Lever and Roller, the driver has perfect control of the finger-bar in backing or raising it over obstructions, or in transporting the machine from field to field.

They throw out and in gear by the driver without leaving his seat, and there is no necessity for backing up to give the knives motion before entering the grass, nor to drive fast to prevent clogging. They have no side draft—no bearing down of the pole to cause sore necks on your horses—no clogging or breaking down, and any boy can manage them.

Each Machine is warranted to be made of good material—to cut any and all kinds of grass without clogging—to have no side draught, and to be worked with less labor for man and team than any machine now offered for sale, doing the same amount of work.

Send for a circular. Address R. L. HOWARD
March—2t. Buffalo, N. Y.

Wheeler & Wilson's Sewing Machines
AT REDUCED PRICES.

WITH Glass Cloth-Presser, Improved Loop-Check, New Style Hemmer, Binder, Corder, etc.

OFFICE, No. 505 BROADWAY, NEW YORK.

"This machine makes the 'LOCK STITCH,' and ranks highest on account of elasticity, permanence, beauty, and general desirableness of the stitching when done, and the wide range of its application."—*Report of American Institute, New York.*

This Report was in accordance with the previous awards at the

Fair of the United States Agricultural Society,

At the Fairs of the
American Institute, New York;
Mechanics' Association, Boston;
Franklin Institute, Philadelphia;
Metropolitan Mechanics' Institute, Washington;
Mechanics' Institute, Baltimore;
Mechanics' Association, Cincinnati;
Kentucky Institute, Louisville;
Mechanics' Association, St. Louis;
Mechanics' Institute, San Francisco,

At the State Fairs of

Maine,	Virginia,	Tennessee,
Vermont,	Mississippi,	Illinois,
Connecticut,	Missouri,	Kentucky,
New York,	Ohio,	Michigan,
New Jersey,	Indiana,	Wisconsin,
Pennsylvania,	Iowa,	California,

And at hundreds of County Fairs. March—2t.

Important to every Man who Keeps

THORLEY'S FOOD FOR CATTLE,

CONVERTS the poorest Hay or Straw into a Superior Provender. For Horses it is indispensable in promoting and sustaining the animal functions in health and vigor. For Milch Cows, it is invaluable, increasing the quantity and improving the quality of the milk. For Beasts, nothing can compare with it for feeding quickly. For Sheep and Pigs, the effects produced in one month will exceed all expectation.

Sold in casks, containing 448 feeds, price $14; ¼ casks, containing 224 feeds, $7; and ⅛ casks, containing 112 feeds, $4.

Depot for the United States, No. 21 Broadway, New York.

A Pamphlet, descriptive of its utility, containing Testimonials and Directions for Use, sent free on application.

N. B.—Agents required in every principal town in the United States. March, 1861,—6t.

FIRST CLASS White-Faced Black Spanish Fowls, at $2 each and Eggs cheap. Also, Fancy Pigeons.
March—3t E. C. ARMSTRONG, Florida, Orange Co., N. Y.

THE TRIBUNE FOR 1861.

PROSPECTUS.

THE WEEKLY TRIBUNE is now in its XXth Volume. During the past year, THE TRIBUNE has been obliged to devote quite a large proportion of its space to Politics, but we shall henceforth be able to limit our space devoted to Political discussion, and devote most of our columns to subjects of less intense, but more abiding, interest. Among these, we mean to pay especial attention to

I. EDUCATION.—The whole subject of Education, both Popular and General, will be discussed in our columns throughout the year 1861, and we hope to enlist in that discussion some of the profoundest thinkers and the ablest instructors in our country. It is at once our hope and our resolve that the cause of Education shall receive an impetus from the exertions of THE TRIBUNE in its behalf during the year 1861.

II. AGRICULTURE.—We have been compelled to restrict our elucidations of this great interest throughout 1860, and shall endeavor to atone therefor in 1861. Whatever discovery, deduction, demonstration, is calculated to render the reward of labor devoted to cultivation more ample or more certain, shall receive prompt and full attention.

III. MANUFACTURES, &c.—We hail every invention or enterprise whereby American Capital and Labor are attracted to and advantageously employed in any department of Manufacturing or Mechanical Industry as a real contribution to the public weal, insuring ampler, steadier, more convenient, more remunerating markets to the Farmer, with fuller employment and better wages to the Laborer. The Progress of Mining, Iron-making, Steel-making, Cloth-weaving, &c., &c., in our country, and the world, shall be watched and reported by us with an earnest and active sympathy.

IV. FOREIGN AFFAIRS.—We employ the best correspondents in London, Paris, Turin, Berlin, and other European capitals, to transmit us early and accurate advices of the great changes there silently but certainly preparing. In spite of the pressure of Domestic Politics, our News from the Old World is now varied and ample; but we shall have to render it more perfect during the eventful year just before us.

V. HOME NEWS.—We employ regular paid correspondents in California, at the Isthmus of Darien, in the Rocky Mountain Gold Region, and wherever else they seem requisite. From the more accessible portions of our own country, we derive our information mainly from the multifarious correspondents of the Associated Press, from our exchanges, and the occasional letters of intelligent friends. We aim to print the cheapest general newspaper, with the fullest and most authentic summary of useful intelligence that is anywhere afforded. Hoping to "make each day a critic on the last," and print a better and better paper from year to year, as our means are steadily enlarged through the generous co-operation of our many well-wishers, we solicit and shall labor to deserve a continuance of public favor.

TERMS:

DAILY TRIBUNE, (311 issues per annum)..... $6
SEMI-WEEKLY, (104 " " ")..... $3
WEEKLY, (52 " " ")..... $2

TO CLUBS.—*Semi-Weekly*, two copies for $5, five copies for $11.25; ten copies to one address for $20; and any larger number at the latter rate. For a club of twenty, an extra copy will be sent. For a club of forty, we send THE DAILY TRIBUNE gratis one year.

Weekly: Three copies for $5; five for $8; ten for $15, and any larger number at the rate of $1.20 each per annum, the paper to be addressed to each subscriber. To clubs of twenty, we send an extra copy.

Twenty copies *to one address* for $20, with one extra to him who sends us the club. For clubs of forty, we send one copy of THE SEMI-WEEKLY TRIBUNE. For each club of one hundred, THE DAILY TRIBUNE will be sent gratis one year.

Payment always in advance. Address,
THE TRIBUNE, No. 154 Nassau St., New York

THE TRIBUNE ALMANAC FOR 1861.

This popular Annual was issued on the first of January, and contains

THE RETURNS OF THE ELECTIONS OF 1860,

and a large amount of other interesting political matter.

PRICE 13 cents; 12 copies for $1, 100 copies $8, postage paid. By express, $7 per 100. Cash orders solicited.
Feb.—3t. Address, THE TRIBUNE, New York.

ENGRAVING

IN all its branches, viz: Views of Buildings, Book Illustrations, Machinery, Fruits, Trees, Landscapes, Portraits of Horses and Cattle, Seals, etc., promptly executed on reasonable terms, at No. 86 ARCADE, (over the Post Office).
Feb.—3t L. C. MIX, Rochester, N. Y.

WM. PATERSON'S
Improved Superphosphate of Lime.

MANUFACTURED and for sale at Division Street Wharf, Newark, N. J., and by the Manufacturer's Agents in this and other States.

It is put up in bags of 100 and 150 lbs. each, and marked with the Maker's name, to whom orders sent with cash, or satisfactory references here or in New York, will be promptly executed.

The aforesaid article consists principally of Charred Bones, dissolved by Sulphuric Acid with a large proportion of Peruvian Guano and other important ingredients.

The largely increased sales for the last seven years, with the unsolicited reports of Agents, and premiums awarded by State and other Agricultural exhibitions in past years, attest satisfactorily its remunerative results, being found more permanent in its effects than Peruvian Guano, and consequently more profitable.

It has been the aim of the manufacturer to make this manure what it is avowed to be, and the public may rest assured that it will continue to be uniform in quality and profitable to the buyer.

Circulars, with particular instructions for use, will be sent by mail when requested or on application to his agents.

March—7t. WM. PATERSON,

Bloomington Nursery, Illinois,

AT Junction of Illinois Central, (Dubuque and Cairo,) and St. Louis, Alton and Chicago Rail Roads. Established 1852. 120 acres Fruit, Ornamental and Nursery Stock. A very general and reliable assortment, cheap for cash. Particular attention invited to the splendid stock and assortment of *one year Apple Grafts*, mostly 2 to 3 feet; 1000, $25. Also, *Root Grafts*; 10,000, $50, for our ordinary and, we may add, unusually successful quality, (from which above named fine 1 year olds.) *Root Grafts*, extra strong, (to order only,) 10,000, $75. *Dwarf Fruit*,—choice *Currants* and *Grapes*, many sorts. *Mulberry*, Downing's everbearing, $16 per doz. *Gooseberry*, *Blackberry*, *Raspberry*, 15 to $40 per 1000. *Strawberry*, including Wilson's, and both McAvoy's, 1000, $5. *Asparagus*, strong 3 year, 1000, $5. *Rhubarb*, including Linneus and Victoria, *true*, 1000, $30 to $60. *Apple Stocks*, good 2nd size for budding, 10,000, $15. Quince, Pear, Plum, Mahaleb and Rose Stocks. *Apple Seeds*, *Shade* and *Weeping Trees*, *Roses*, *Shrubs* and *Bulbs*, a superb stock. *Evergreens*, nursery grown, several sorts, 1000, $10, &c. Packing carefully done. See Catalogue. Address, Bloomington, Ill.

Feb.—4t. J. K. PHŒNIX.

SEEDS! SEEDS! SEEDS!
Garden, Vegetable, Grass and Flower Seeds,

OF every desirable variety. *Priced Catalogues sent free by Post on application.*

No. 1.—Descriptive List of Flower Seeds, Horticultural Implements, etc

No. 2.—Vegetable, Grass, Herb, and Miscellaneous Seeds.

No. 9.—Wholesale Price List of Vegetable Seeds, for Dealers' use

ALFRED BRIDGEMAN,

March—3t. No. 876 BROADWAY, NEW YORK CITY.

EMPLOYMENT.

THE undersigned are desirous of securing the services of a few Young Men to engage in a Traveling Agency, upon the salary of

Forty Dollars per Month, and all Expenses Paid.

This is an opportunity seldom offered, and to those who merit the approbation of the subscribers, by a strict attention to business, can rely upon constant employment for a term of years. For further particulars, address, CONANT & DRAKE,

Feb.—3t. 31 Main St., Atkinson Depot, N. H.

No. 1 Peruvian Guano, Warranted Pure,
SUPERIOR PHOSPHATE OF LIME,

PURE GROUND BONE, POUDRETTE, &c.,

Sold by GRIFFING, BROTHER & Co.,

Feb.—4t. 60 Courtland St., New York City.

AMERICAN ARBOR VITÆ.

BALSAM Fir, Hemlock, Norway and American Spruce, Pines, Deciduous Ornamental Trees, Gooseberries, &c., in quantities to suit, at lowest cash rates. Send for a Catalogue.

S. T. KELSEY & CO., GREAT VALLEY NURSERIES,

Nov.—6t. Great Valley, Cattaraugus Co., N. Y.

COUNTRY AGENTS WANTED.

$3 A DAY. Mrs. HANKINS wants Good Agents at home or to travel for her Pictorial "FAMILY NEWSPAPER," also for her Curious new Book of FEMALE CHARACTERS IN THE CITY. Specimens and Terms mailed free. Address

March.—6t. HANKINS & CO., New York.

MARBLEHEAD MAMMOTH CABBAGE.

THIS is the largest Cabbage in the world, averaging 20 lbs. per plant *by the acre!* Plants of this variety have been raised, weighing over 60 lbs., measuring nearly six feet around the solid head. Over sixty tons have been raised to the acre. Upwards of $300 have been cleared from one half acre of land planted to this Cabbage.

Circulars, in which the above facts are thoroughly substantiated, and many statements relative to the famous Mason and Stone Mason Cabbage, Marrow Squash, and Hubbard Squash, (for the introduction of which I received a piece of silver plate, as a testimonial from the Massachusetts Horticultural Society,) forwarded gratis.

Packages of the Mammoth, 25 cts. each; of the Mason or Stone Mason, 33 cents per ounce; $1.00 for four ounces. Hubbard Squash, 15 cts. for about fifty seeds; extra pure Marrow, 25 cts. per package. JAMES J. H. GREGORY,

Feb.—4t. Marblehead, Mass.

Peruvian Guano,
Government Brand and Weight;
Ichaboe Guano,
American Guano,
Fish Guano,
Improved Superphosphate of Lime,
Bone Dust, fine and loose,
Land Plaster,

For sale in quantities to suit purchasers.

A. LONGETT,

March.—3t No. 34 Cliff Street, New York.

The Great Austin Shaker Seedling Strawberry.

THE Price of this monstrous variety will be reduced this spring to $2 per dozen, or $10 per hundred, delivered in rotation as ordered, after the first of April.

The Great Austin is believed to be the most productive and average the largest in size of any other strawberry in cultivation. Orders addressed to either CHAUNCY MILLER, Shaker Trustee, Albany, N. Y., or WM. S. CARPENTER, 468 Pearl street, New York city. March—2t.

HUBBARD SQUASH.

I HAVE received from the Massachusetts Horticultural Society, a piece of Silver Plate, as **Original Introducer** of of this celebrated Squash. A package of about 50 seeds, of the purest quality grown, *warranted* to reach each purchaser, 13 cents; four packages, 50 cents, JAMES J. H. GREGORY.

March—3t. Marblehead, Mass.

"FAMILY NEWSPAPER."

MRS. HANKINS' Mammoth Pictorial is in its Sixth Volume, and has 300,000 readers. Full of Engravings and Fashion Plates. Largest, nicest and best in the World, for **75 cents** a year. AGENTS Wanted. Ladies, Teachers, Clergymen or Post Masters. Specimen copies and Terms to Agents mailed gratis.

March.—6t. Address HANKINS & CO., New York.

FANCY FOWLS.—I have on hand, for sale, White Dorkings, Black Spanish, Black and Golden Spangled Polands and Hamburghs, Black African, White, Red and Golden Spangled Bantams, Madagascar Rabbits and four varieties of Geese, etc. For further information address, W. A. GOODING,

March—10t.* Lockport, Illinois.

SHEEP FOR SALE.

FOR SALE at the Lorillard Sheep Farm at Fordham, Westchester Co., 12 miles from the City of New York, on the N.Y. & Harlem Railroad, 20 SOUTH DOWN RAMS, yearlings; also, 20 SHROPSHIRE DOWN RAMS, yearlings—the production of the finest imported Rams, having taken the first premiums at the New York State Fairs in 1859 and 1860.

Inquire at 16 and 18 Chambers St., New York. Dec.—6m

GEORGE MILLER—Importer and Breeder of Short-horn and Galloway Cattle, Leicester and Cotswold Sheep, Markham P. O., Co. York, Canada West. N. B. A few choice Dorking Fowls, bred from imported stock, can be had in autumn. Price $5 per pair. July—1y

50,000 PEACH TREES—Innoculated last season with the choicest fruit, which we will sell at $25 per 1000 trees, delivered at Railroad free of cost. Address

Mh—2t* J. T. SERGEANT & CO., Sand Brook P. O., N. J.

5,000 AGENTS WANTED—To sell 5 new inventions—very recent and of great value to families. ALL pay great profits to agents. Send four stamps and get 80 pages of particulars. Nov.—6t* EPHRAIM BROWN, Lowell, Mass.

CONCORD GRAPE VINES.

THE Subscriber has a choice lot of CONCORD GRAPE VINES, from one to four years old, at very low prices, all grown from vines obtained from the original of that variety in 1854, and are warranted genuine. For the table, wine, and market, no other Grape can be compared to the Concord. It ripens in any latitude south of Montreal, Canada, improves as it goes South, and is ranked far superior to the Delaware, and other popular varieties, as a *market* and *wine* Grape, by those who fully understand its good qualities. ☞ Subscription moneys due to subscribers to the late "*Rural American*," will be paid in Concord Grape Vines. Circulars with full details of price, proofs of the great value of the Grape, &c., will be sent to all applicants who enclose a postage stamp. Address T. B. MINER,
April.—1t Clinton, Oneida Co., N. Y.

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THE Subscribers, BRODIE, CAMPBELL & CO., are now engaged in Breeding and Importing Farm Stock of the first quality. Mr. BRODIE was formerly of the firm of HUNGERFORD & BRODIE (which firm is now dissolved.) His skill and large experience in the business are well known to Breeders.

Part of the Stock can be seen at S. CAMPBELL'S place, three miles west of Utica, or one and a half miles from the Whitesboro Depot, N. Y. Central R. R.

Mr. HUGH BRODIE is now visiting England and Scotland selecting animals. Parties wishing to purchase Short Horns or Ayrshires Leicester Sheep, or Yorkshire Hogs, can address
ap-3t JAMES BRODIE, Rural Hill, Jefferson Co., N. Y., or S. CAMPBELL & CO., New York Mills, Oneida Co., N. Y.

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BESIDES our fine collection of Delaware, Rebecca, Diana, Concord, and many othervarieties of New Hardy Vines, we also offer for sale this spring Plants of the New White Grape ELIZABETH. For particulars, send for Catalogue and apply to
C. W. SEELYE, ROCHESTER CENTRAL NURSERIES,
Rochester, N. Y.

TO NURSERYMEN, &c.

THE Nursery Trade List for 1860-61 of
PETER LAWSON & SON,
EDINBURGH and LONDON, is now ready, and may be had on application to CRAIG & NICOL,
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LANDS OF ILLINOIS.

No State in the Valley of the Mississippi offers so great an inducement as the State of Illinois. There is no portion of the world where all the conditions of climate and soil so admirably combine to produce those two great staples, CORN and WHEAT, as the Prairies of Illinois.

THE SOUTHERN PART

of the State lies within the zone of the cotton regions, while the soil is admirably adapted to the growth of tobacco and hemp; and the wheat is worth from fifteen to twenty cents more per bushel than that raised further north.

RICH ROLLING PRAIRIE LANDS.

The deep rich loam of the prairies is cultivated with such wonderful facility that the farmers of the Eastern and Middle States are moving to Illinois in great numbers. The area of Illinois is about equal to that of England, and the soil is so rich that it will support twenty millions of people.

EASTERN AND SOUTHERN MARKETS.

These lands are contiguous to a railroad 700 miles in length, which connects with other roads and navigable lakes and rivers, thus affording an unbroken communication with the Eastern and Southern markets.

APPLICATION OF CAPITAL.

Thus far, capital and labor have been applied to developing the soil; the great resources of the State in coal and iron are almost untouched. The invariable rule that the mechanical arts flourish best where food and fuel are cheapest, will follow at an early day in Illinois, and in the course of the next ten years the natural laws and necessities of the case warrant the belief that at least five hundred thousand people will be engaged in the State of Illinois in various manufacturing pursuits.

RAILROAD SYSTEM OF ILLINOIS.

Over $100,000,000 of private capital have been expended on the railways of Illinois. Inasmuch as part of the income from several these works, with a valuable public fund in lands, go to diminish the State expenses, the TAXES ARE LIGHT, and must consequently every day decrease.

THE STATE DEBT.

The State Debt is only $10,105,398, 14, and within the last three years has been reduced $2,939,746 80, and we may reasonably expect that in ten years it will become extinct.

Pamphlets descriptive of the lands, soil, climate, productions, prices and terms of payment, can be had on application to

PRESENT POPULATION.

The State is rapidly filling up with population; 868,025 persons having been added since 1850, making the present population 1,723,663, a ratio of 102 per cent. in ten years.

AGRICULTURAL PRODUCTS.

The Agricultural products of Illinois are greater than those of any other State. The products sent out during the past year exceeded 1,500,000 tons. The wheat crop of 1860 approaches 35,000,000 bushels, while the corn crop yields not less than 140,000,000 bushels.

FERTILITY OF THE SOIL.

Nowhere can the industrious farmer secure such immediate results for his labor as upon these prairie soils, they being composed of a deep rich loam, the fertility of which, is unsurpassed by any on the globe.

TO ACTUAL CULTIVATORS.

Since 1854, the company have sold 1,300,000 acres. They sell only to actual cultivators, and every contract contains an agreement to cultivate. The road has been constructed thro' these lands at an expense of $30,000,000. In 1850 the population of the forty-nine counties through which it passes was only 335,598; since which 479,293 have been added, making the whole population 814,891, a gain of 143 per cent.

EVIDENCES OF PROSPERITY.

As an evidence of the thrift of the people, it may be stated that 600,000 tons of freight, inclucing 8,600,000 bushels of grain, and 250,000 barrels of flour, were forwarded over the line last year

EDUCATION.

Mechanics and workingmen will find the free school system encouraged by the State, and endowed with a large revenue for the support of schools. Their children can live in sight of the church and schoolhouse and grow with the prosperity of the leading State in the Great Western Empire.

PRICES AND TERMS OF PAYMENT.

The prices of these lands vary from $6 to $25 per acre according to location, quality, &c. First-class farming lands sell for about $10 or $12 per acre; and the relative expense of subduing prairie land as compared with wood lands is in the ratio of 1 to 10 in favor of the former. The terms of sale for the bulk of these lands will be

One Year's Interest in advance,

at six per ct. per annum, and six interest notes at six per ct. payable respectively in one, two, three, four, five and six years from date of sale; and four notes for principal, payable in four, five, six and seven years from date of sale; the contract stipulating that one-teuth of the tract purchased shall be fenced and cultivated, each and every year, for five years from date of sale, so that at the end of five years, one-half shall be fenced and under cultivation.

Twenty Per Cent. will be deducted

from the valuation for cash, except the same should be at six dollars per acre, when the cash price will be five dollars.

J. W. FOSTER, Land Commissioner, Chicago, Illinois.

For the names of the Towns, Villages and Cities situated upon the Illinois Central Railroad see pages 188, 189, 190, APPLETON'S RAILWAY GUIDE.